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PROCEEDINGS
OF THE
CONNECTICUT
STATE MEDICAL SOCIETY
1912

120th ANNUAL CONVENTION

HELD AT .

NEW HAVEN, MAY 22d and 23d

EDITOR

WILDER TILESTON

PUBLISHED BY THE SOCIETY

The Connecticut State Medical Society does not hold itself responsible for the opinions contained in any article unless such opinions are indorsed by special vote. All communications intended for the Connecticut State Medical Society should be addressed to Wilder Tileston, M.D., New Haven, Conn.

The next annual meeting of the Connecticut State Medical Society will be held in Hartford, May 21st and 22d, 1913.

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1912-1913.

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Vice Presidents.

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WILDER TILESTON, New Haven.

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The Secretary.

COMMITTEE ON MEDICAL EXAMINATIONS AND MEDICAL EDUCATION.

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Charles J. Foote. Elias Pratt.
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Charles E. Stanley. Eli P. Flint.
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Frank K. Hallock. Seldom B. Overlock.
John G. Stanton.

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COMMITTEE ON A SANATORIUM FOR THE NERVOUS POOR.

Rienzi Robinson. John L. Buel.
Henry S. Noble. George Blumer.
Frederick T. Simpson.

COMMITTEE ON A STATE FARM FOR INEBRIATES.

Frank H. Barnes. Charles J. Bartlett.
Robert L. Rowley. Daniel C. Patterson.
Arthur B. Coleburn.

PROCEEDINGS.

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Charles P. Botsford.	Joseph H. Townsend.
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COMMITTEE ON NATIONAL LEGISLATION.

Everett J. McKnight.

DELEGATES.

DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION.

Everett J. McKnight.
D. Chester Brown.

DELEGATES TO STATE ASSOCIATIONS.

MAINE.

Frederick T. Simpson, Hartford. James M. Keniston, Middletown.

NEW HAMPSHIRE.

Fritz C. Hyde, Greenwich. Samuel Pierson, Stamford.

VERMONT.

John B. Waters, Hartford. Charles J. Bartlett, New Haven.

MASSACHUSETTS.

Henry Blodget, Bridgeport. Edward W. Smith, Meriden.

RHODE ISLAND.

Charles B. Graves, New London. Leone F. LaPierre, Norwich.

NEW YORK.

George Blumer, New Haven. Frank T. Brooks, Greenwich.

NEW JERSEY.

C. Purdy Lindsley, New Haven. William S. Randall, Shelton.

PENNSYLVANIA.

Erastus P. Swasey, New Britain. Everett J. McKnight, Hartford.

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OLIVER C. SMITH.

NEW HAVEN COUNTY.
WILLIAM H. CARMALT (reëlected).

NEW LONDON COUNTY.
PATRICK J. CASSIDY.

FAIRFIELD COUNTY.
SAMUEL M. GARLICK (reëlected).

WINDHAM COUNTY.
GEORGE M. BURROUGHS.

LITCHFIELD COUNTY.
ELIAS PRATT (reëlected).

MIDDLESEX COUNTY.
GEORGE N. LAWSON.

TOLLAND COUNTY.
THOMAS F. ROCKWELL (reëlected).

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HARTFORD COUNTY.

Thomas G. Sloan.	Frank L. Waite.
John F. Dowling.	Erastus P. Swasey.
Paul P. Swett.	Frederick B. Willard.
Charles D. Alton.	

PROCEEDINGS.

NEW HAVEN COUNTY.

Edward S. Moulton.	Henry L. Swain.
Louis M. Gompertz.	Joseph A. Cooke.
Henry G. Anderson.	Ernest H. Arnold.
Francis N. Loomis.	Gustavus Eliot.

NEW LONDON COUNTY.

Edwin C. Chipman.	George H. Thompson.
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FAIRFIELD COUNTY.

William H. Donaldson.	Charles W. Gardner.
George H. Warner.	Myron W. Robinson.
Alvin E. Barber.	

WINDHAM COUNTY.

Charles E. Simonds.	John B. Kent.
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LITCHFIELD COUNTY.

Almon W. Pinney.	Francis S. Skiff.
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MIDDLESEX COUNTY.

James T. Mitchell.	Kate C. Mead.
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TOLLAND COUNTY.

William L. Higgins.

STANDING COMMITTEES.

COMMITTEE ON PUBLIC POLICY AND LEGISLATION.

Everett J. McKnight.	Frederick M. Wilson.
Charles J. Foote.	Elias Pratt.
Rush W. Kimball.	Seldom B. Overlock.
Charles E. Stanley.	Eli P. Flint.
The President.	The Secretary.

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Walter R. Steiner.

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Charles B. Graves.

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Henry W. Ring. Otto G. Ramsay.
Harold S. Arnold.

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Charles P. Botsford. Joseph H. Townsend.
William B. Cogswell.

COMMITTEE ON NATIONAL LEGISLATION.

Everett J. McKnight.

MINUTES OF THE HOUSE OF DELEGATES.

The first meeting of the House of Delegates was called to order on Wednesday, May 22, at eleven o'clock, at the Hotel Taft, corner Chapel and College Streets, New Haven, by the President, Dr. John G. Stanton of New London. There were present Dr. Oliver C. Smith, Dr. William H. Carmalt, Dr. Patrick J. Cassidy, Dr. Samuel M. Garlick, Dr. George M. Burroughs, Dr. Elias Pratt, Dr. George N. Lawson (councilors), and Dr. Thomas G. Sloan, Dr. John F. Dowling, Dr. Frank L. Waite, Dr. Erastus P. Swasey, Dr. Frederick B. Willard, Dr. Charles D. Alton, Dr. Edward S. Moulton, Dr. Louis M. Gompertz, Dr. Francis N. Loomis, Dr. Joseph A. Cooke, Dr. Gustavus Eliot, Dr. Edwin C. Chipman, Dr. George H. Thompson, Dr. William H. Donaldson, Dr. Myron W. Robinson, Dr. Alvin E. Barber, Dr. Clarence E. Simonds (delegates), the President, Dr. John G. Stanton, and the Secretary, Dr. Walter R. Steiner. The following reports were then read and accepted.

(1) Report of the President, Dr. John G. Stanton (New London):

REPORT OF PRESIDENT.

Gentlemen of the House of Delegates:

The next thing, gentlemen, is the report of the President. It is unnecessary to say that I appreciate highly the honor you have conferred upon me. I know that it is customary to give a rather extended reference to many things, but on this occasion I shall spare you most of these, and refer only to one or two things.

You may or may not know that there seems to be a lack of enthusiasm for membership in our Society. The reports to the Council show that men do not come to increase our numbers as they should. Whether this is due to personal inertia on their part or because they think that the Society has not much of interest to present, or whether it lies in the fact that they think

the dues are too high, I do not know; but I do know that we do not get the men that we should receive. I hope that you will all make a special effort to see whether you cannot interest some one man to join the Society. The more members we have, of course, the less proportionately the expenses will be.

Another thing that will be brought before you is the advisability of the perpetuation of the publication of our Proceedings in the *Yale Medical Journal*. It is a vital question whether that journal shall go on or not. It seems to me personally too bad that the only medical journal that we have in this State should not have a good support. It seems a shame to have it die from lack of support. Some of the members say that the articles appear in it so late that they lack interest, but I am told that this is true of articles in all other medical journals; so our editors are not any more derelict than others. Possibly, however, that fault might be amended in some degree. The verdict that I have heard is that if it could come out with reasonable promptness, so as to be encouraging to writers to have their papers published in it, we might do away with the publication of the Proceedings of the Society in a separate volume, and so cut down our expenses. The matter of expense appeals to many of the members; and while a dollar more or less is not much, they feel that this dollar represents something that they do not get.

There are a great many other things that I might talk about, but I will not detain you now to do so; as more interesting things will come up in the course of the meeting than any that I might say. So we will proceed with the regular order of business.

(2) Report of the Secretary, Dr. Walter R. Steiner (Hartford):

REPORT OF THE SECRETARY.

Mr. President and Gentlemen of the House of Delegates:

The fourth semi-annual meeting of the Connecticut State Medical Society was held at Canaan on October 3d, 1911, under the auspices of the Litchfield County Medical Association.

About forty members of the State Medical Society were present. The meeting was of interest in the papers read and in the fact that the Litchfield County Medical Association, antedating the founding of this state society by twenty-seven years, is the oldest medical society in the United States which is now in continuous existence.

The third semi-annual meeting occurred at Middletown, being held at the Connecticut Hospital for the Insane. A hundred and four members of the State Society were present. The clinic of psychiatric cases and the papers on neurasthenia made this gathering one which will long be remembered by those who had the pleasure of attending.

The second annual meeting convened at Bridgeport. A hundred and five members of the State Society were there assembled. The symposium upon alcohol was well presented by those interested in this subject. This, with two other papers, made the gathering most successful.

The first semi-annual session met at New London. There were one hundred members present. A symposium upon tuberculosis was furnished which evoked considerable interest, the diagnosis and treatment, both medical and surgical, being given.

We have thus had four of these gatherings in different parts of the State, under the auspices of various county medical associations, and with two more meetings in Windham and Tolland counties, the tour of the State will be completed. These sessions appear to have been thoroughly successful in arousing more interest in the territories covered.

The other innoyation, introduced at the same time, and also Dr. McKnight's suggestion, was the publication of the Transactions in the *Yale Medical Journal*. His idea was that thus the papers would appear at an earlier date than if they came out in the Transactions alone. This plan, however, has been in this respect a complete failure, nor did I see from the onset how it could be successful under the existing circumstances. It has, however, given us a periodical which has some of the characteristics of a state journal. On the other hand, it has practically doubled our cost of printing and has proved itself a burden

financially by sinking us deeply in debt. If we want a state organ, then, by getting sufficient advertisements the *Yale Medical Journal* may be made to pay. My personal opinion is that we have enough journals as it is, and that we should not hinder the editors of the *Yale Medical Journal* in their desire to let it die a natural death.

Our membership, including the eighteen honorary members, shows a decrease of seven over that of last year, making our total number eight hundred and seventy-five. The Fairfield County Association has added the most new members, the number being sixteen; New Haven comes next with seven; Hartford follows with six, Litchfield with four, New London with two, and Windham and Tolland with one. Middlesex has added no new members during the past year. The names of the new members in the County Associations, with graduation and places of residence, we give below. They number thirty-seven in all.

Arthur Percy Noyes, Univ. of Penn., 1906, Suffield.

Albert Edward Cobb, Yale, 1898, Hartford.

Abraham Fischer, N. Y. Univ. and Bellevue Hosp., 1909, Hartford.

William Thomas Morrissey, B.A., Holy Cross Coll.; Baltimore, 1909, Unionville.

Edward Hamilton Truex, Univ. of Louisville, 1908, East Hartford.

Vernon H. Chipman Morse, Harvard Med. School, 1903, Avon.

James David McGaughey, Jr., Jefferson, 1910, Wallingford.

Jacques Louis Buttner, Yale, 1909, New Haven.

Hugh Francis Keating, Yale, 1908, New Haven.

Alexander Bergman, Univ. City of N. Y., 1895, New Haven.

Albertus Kellogg Boardman, Univ. of Penn., New Haven.

Israel Kleiner, Yale, 1908, New Haven.

Abram Aron Hershman, Yale, 1908, New Haven.

Herbert King Thoms, Yale, 1910, New London.

Charles Mallory Williams, P. & S., N. Y., 1898, Stonington.

Everett J. S. Scofield, Univ. N. C., 1908, Danbury.

Thomas Joseph Bergin, Yale, 1899, Cos Cob.

Charles Ambler Ryder, Yale, 1898, Brookfield Center.

John Eugene Black, Yale, 1908, Shelton.

Isaiah F. Carroll, Balt. Med., 1906, Stamford.

Benn Adelman Bryon, Bellevue, 1890, Ridgefield.

Joseph William Walsh, P. & S., Balt., 1907, Danbury.

Howard D. Moore, Hahn. Philadelphia, 1893, Danbury.
 Samuel Frederick Mullins, Bellevue, 1906, Danbury.
 William Arthur Lafield, N. Y. Homeo., 1905, Bridgeport.
 Abraham Bernstein, Yale, 1908, Bridgeport.
 Nicola M. Sansone, Denver Med. Coll., 1902, Bridgeport.
 Thomas James O'Donnell, Syracuse Med., 1908, Greenwich.
 Francis Joseph Wales, N. Y. Univ., 1897, Stepney Depot.
 Albert Andrews Wheelock, Univ. of Vermont, 1897, New Canaan.
 Florence A. Sherman, Woman's Med. Coll. of N. Y., 1891, Bridgeport.
 Frank A. Camalier, Georgetown Univ., 1908, Willimantic.
 Daniel Phillips Platt, N. Y. Univ. and Bellevue, 1908, Torrington.
 Leonard J. Loewe, Tufts, 1910, Falls Village.
 Henry Smith Turrill, Yale, 1910, Canaan.
 Maurice J. Reidy, P. & S., N. Y. City, 1910, Winsted.
 Donald Laurence Ross, McGill, 1887, Mansfield Depot.

The largest gain in the County Associations is seen in Fairfield, with a net gain of thirteen; Tolland follows with one; while Hartford presents a loss of eleven, New Haven of three, New London of three and Windham of two. Litchfield and Middlesex have remained stationary. We have lost during the year forty-five members; by death fourteen; by removal eleven; by suspension nineteen; by resignation two. Our total number is distributed among the counties as follows:

Membership	County Associations	New Members	Reinstatement	By Transfer	Deceased	Removed	Resigned	Suspended	Expelled	Gain in Membership	Loss in Membership
212	Hartford County.....	6	18	0	2	3	0	11	0	0	11
246	New Haven County....	7	4	0	3	2	0	8	0	0	3
57	New London County...	2	0	0	1	3	1	0	0	0	3
179	Fairfield County.....	16	0	0	3	0	0	0	0	13	0
37	Windham County.....	1	0	0	1	1	0	0	0	0	2
61	Litchfield County.....	4	0	0	3	0	0	0	0	0	0
45	Middlesex County.....	0	1	1	1	1	1	0	0	0	0
20	Tolland County.....	1	0	0	0	1	0	0	0	1	0
857		37	23	1	14	11	2	19	0	14	19

Seven years ago I was about to enter the hall of the Hunt Memorial Building to attend the annual May meeting of this Society. When I was almost on the threshold of the hall I

met the Chairman of the Nominating Committee hurrying into the hall, as the report of his committee had just been called for. As he passed me he stopped to say I was about to be nominated as the Secretary for the ensuing year. I was completely taken aback by this news, for any thought of any possible connection of my name with this position was as remote from me as the east is from the west, and I emphatically told him I could not and would not stand as a candidate. But the time was short, the audience within was clamoring for the report, and in the stress of the moment I yielded to the urgings of the Chairman and became in due course your Secretary, although I had planned to devote my time outside of the strict practice of my profession to work along other medical lines. For seven years I have kept this position and I have taken great pride in thus serving you, for my term of office began with the revision of our charter and by-laws, and there were many things to work out in connection with the separate business sessions, as well as the scientific programmes of our meetings. Now the revised charter and by-laws have, I hope, shown the desirability of their change and I think I can decline a renomination with the feeling that everything is working satisfactorily. My other occupations of a medical nature absolutely preclude my holding the office of Secretary any longer. I thank you one and all for your kindness and forbearance.

Respectfully submitted,

WALTER R. STEINER,
Secretary.

DR. O. C. SMITH (Hartford): Is discussion of the reports in order?

THE PRESIDENT: Yes.

DR. O. C. SMITH (Hartford): I want to thank the President for making the suggestions that he did in his address. Each one of them is important.

In regard to the report of the Secretary, I want to say that I feel that the Society is meeting with an irreparable loss in his declining to serve again. No one knows better than we, who

have been near him and associated with him in his work, how well, how conscientiously, and how successfully he has devoted himself to the interests of this Society during the past seven years. His abilities in this direction are unusual. They are such that he has been elected Secretary of the Congress of American Physicians and Surgeons. I do not know that Dr. Steiner can be prevailed upon to carry on this work any longer, although I hope that he may be. At all events, I wish to go on record, for one, as expressing my deepest appreciation of and gratitude for his work for us in the past seven years.

One other matter: The report of Dr. Lawson, of Litchfield County. I wish that while we are waiting for an interpretation of the term "contract practice," every county in the State would copy Middlesex County's example and draw up such a covenant as they have done, as to how we shall conduct ourselves with reference to this matter. There is, however, one thing in that covenant that I would criticise; and that is that the members are prohibited from consultation with men who do contract practice. I doubt whether that prohibition could be carried out. With that exception, I consider it an excellent document.

DR. W. H. CARMALT (New Haven): I would endorse all that Dr. Smith has said regarding the work that Dr. Steiner has done in the State Society. There is no question that it owes him a very great debt for its present good condition; and, while I do not think that anything is irreparable (if he should die, the work would go on), I want to express my appreciation of his work. I think, however, that I can endorse Dr. Tileston as likely to be a very good successor to Dr. Steiner in this office. There is no question about that in my mind at all.

Regarding the position that Dr. Steiner takes as Secretary of the Congress of American Physicians and Surgeons, I would say that in view of this, I think that he should be relieved from his work as Secretary of this Society. I cannot help thinking that he is right in declining to serve further in the latter position. He cannot do both. No man could do that, I know; and if we can elevate him to a higher sphere of usefulness, it is all right for us to do so.

Meeting adjourned at 1:15 P. M., to meet again in the afternoon at the conclusion of the Scientific Session.

AFTERNOON SESSION, WEDNESDAY, MAY 22, 1912.

The meeting was called to order at 5:15 P. M. by the President, Dr. John G. Stanton. There were present Dr. Oliver C. Smith, Dr. William H. Carmalt, Dr. Patrick J. Cassidy, Dr. Samuel M. Garlick, Dr. George N. Lawson (councilors), and Dr. Thomas G. Sloan, Dr. Frank L. Waite, Dr. Erastus P. Swasey, Dr. Frederick B. Willard, Dr. Charles D. Alton, Dr. Edward S. Moulton, Dr. Gustavus Eliot, Dr. Edwin C. Chipman, Dr. George H. Thompson, Dr. William H. Donaldson, Dr. Myron Robinson, Dr. Alvin E. Barber (delegates), the President and the Secretary.

Miscellaneous Business.

THE PRESIDENT: We shall now hear something about the status of the *Yale Medical Journal* from Dr. George Blumer.

DR. GEORGE BLUMER (New Haven): I do not know exactly what I am expected to say. I feel like the gentleman who was torn between love and duty. If it were a question of duty alone, the *Journal* ought to be dropped. There are a great many medical journals in this country, and the consequence is that their quality is inferior on account of their number being so large. There is, however, another side of the matter, a sentimental side, which it might be worth while for us to consider. The *Yale Medical Journal* was started as a students' journal; and, naturally, some of the men interested in starting it have a certain amount of interest in seeing it kept up. I was talking to-day with Dr. H. M. Hurd, of Baltimore, who for a great many years edited the *Johns Hopkins Hospital Bulletin*; and he happened to know that we were considering dropping the *Journal* on account of the responsibility involved, and advised very strongly against it. He said that it was not such a bad journal, after all. He seemed to think that journals of that sort do do something, that they tend to hold the men together and form a common bond of interest; and that they could be used, if not for formal articles, for such things as case reports, pre-

liminary reports of investigations, and brief papers based mainly on the observation of clinical cases.

Therefore, as I said when I got up, I do not know exactly what I am expected to say. I think that the probabilities are that the Medical Faculty of Yale would still be willing to assume a certain measure of responsibility; but I do not believe that they would care to pay something like one hundred dollars a year and see that the *Journal* is got out in time, and so on. If, however, the members of the Society think it still worth while to continue the *Journal*, we will be willing to speak of it.

I am not going to speak about the financial side of the matter. Dr. Scarbrough is here, and can tell you more than I can about that.

DR. MARVIN M. SCARBROUGH (New Haven): The financial side of the *Journal* was quite a problem; and it was owing to the support of the State Medical Society that we have been able to make both sides of the account balance. We have tried to find a means to lower the expense of publishing, but have found this impossible, owing to the increase in the price of labor and printing. Under the present contract, the State Society pays the *Journal* at the rate of two dollars and a half for each member that receives a copy, which includes the Proceedings and the *Journal* for the year; and we find that this is the lowest possible figure at which we can bring out the *Journal*. To run the *Journal* next year, it will cost, on the same basis, over three thousand dollars; and so we intend, if the *Journal* is continued, to get twenty-five hundred dollars from the State Society, and try through advertisements and the few paid subscriptions that we have to raise enough besides this to enable us to pay expenses.

DR. WILLIAM H. CARMALT (New Haven): I should like to ask what is the subscription list of the *Yale Medical Journal* outside of the State Society?

DR. MARVIN M. SCARBROUGH (New Haven): It is less than one hundred dollars, and very few of these subscriptions are collectible. I have not figured up the amount of money taken in, but it is about seventy-five dollars in subscriptions this year.

DR. HAROLD S. ARNOLD (New Haven): There is very little to be said about the *Journal*, except that the editors are not particularly anxious to continue it for another year, and would do so only in response to a desire on the part of someone else. It is impossible to get outside the State material for it, and it would have to be continued without the aid of the students. The Faculty are not particularly anxious to run it; but if there is a demand for it, they will be glad to do what they can.

THE PRESIDENT: We should like to hear from Dr. Frank K. Hallock, of Cromwell, the Chairman of the Committee that was to have reported at Canaan on the subject.

DR. FRANK K. HALLOCK (Cromwell): Dr. Steiner, the other member of the Committee, and I met the editors of the *Yale Medical Journal*, but they were unable to reach any definite conclusion. On the one hand, it seemed to be a bad business proposition for our Society to continue the *Journal*; there is no question on that score. On the other hand, it seemed very desirable to have some medium of connection between the County Societies, in which their members could report cases and publish their papers. That is the status in which the matter was left, so far as our committee is concerned. Personally, Dr. Steiner and I both feel that it would perhaps be better to discontinue the publication of the *Yale Medical Journal*, and possibly endeavor to inaugurate a State Medical Journal in its place; but that seems to me a very doubtful measure. We could reach no positive conclusion as to what we had better do, further than to leave the matter to your judgment.

DR. FREDERICK B. WILLARD (Hartford): *Mr. President*: When it became known that some of us thought it best to discontinue the *Yale Medical Journal*, we looked into the matter of the cost of printing in Hartford, thinking that there might be a difference. On the basis of two thousand copies, which is larger than the issue as already printed, we found that it would cost in the neighborhood of two hundred and eighty dollars in money to issue a journal of about the same size as the *Yale Medical Journal*. On the other hand, we found that if the size of the

page were increased so as to be more the size of the pages of the *Journal of the American Medical Association*, the decrease in the cost of printing would be quite a little; and that if less copies (that is, an issue of a thousand copies, instead of two thousand) were printed, it would reduce the cost.

It seems to be pretty evident that the Faculty of the Yale Medical School and those associated with them do not care to carry on the *Journal*. While not committing myself one way or the other as to whether I should advocate a State Medical Journal, I will, in order to bring the matter to a head, move that a committee of five be appointed by the Chair to consider the advisability of publishing a State Medical Journal during the following year; this committee, if possible, to report to-morrow. That seems like a short time, I admit; but, on the other hand, we have the reports of the Councilors and of the various county organizations that have reported: it should not, therefore, be difficult to decide as to how we feel about the matter.

DR. GUSTAVUS ELIOT (New Haven): Having received two degrees from Yale University, I am sorry to hear that the *Yale Medical Journal* is in such straits. It seems to me that there is room for a journal representing what Yale is doing for medical science. The *Yale Medical Journal* has never quite fulfilled that requirement. There are a number of men in New Haven working in different lines of medicine, and we do not hear through this journal what they are doing. It seems to me that a journal of that sort should keep the members of the State Society in knowledge of what is going on. The students of the Yale Medical Department, it seems to me, undertake to print and publish a journal according to their own notions. Issuing the *Yale Medical Journal* as an organ of the Connecticut State Medical Society has not been a success, because it has not been our organ. The members of the Society could not register their feelings about current topics in its columns. The establishment of a medical journal for our own membership, however, would, in my opinion, be both extravagant and unsatisfactory. It would, I think, be unwise for us to undertake it. It would require a lot of work to edit it, and would be a long

while before we could get an audience beyond our members. Our Proceedings should be published in an annual volume, as now. I should be unwilling to see this given up. When the Transactions appear in weekly numbers, these get pushed under the desk or into the wastebasket; and when you want to find any article in them, it is impossible to do so. If you have an annual volume, you can put it in the bookcase; and when you want it, to find anything in it, you have some chance of being able to do it. This, nine out of every ten men cannot do with a journal.

In publishing this annual volume of the Proceedings, the members should be kept within strict limits. They should not be allowed to read a paper for over twenty minutes, nor to publish a lot of matter that extends beyond what they have been able to read in that time. It would not be wise for us to publish illustrations. By adhering to these rules, the expense of publication could be kept down. Probably the Secretary could tell us what an issue of a thousand volumes would cost, and that would give us an idea of what the annual dues should be. I am anxious to keep the dues at two dollars, if possible; and I am opposed to raising them to four dollars, because the men pay this sum grudgingly and feel that they are not getting the worth of their money.

DR. EDWARD S. MOULTON (New Haven): I was one of the small group of men who started the *Yale Medical Journal*. We had great hopes for its future then. We were young and enthusiastic at that time. Now, it seems to me, from a purely business point of view, that for this Society to publish the Proceedings twice is an absolute business absurdity. The Treasurer tells me that before we took over the *Yale Medical Journal*, we had a surplus of sixteen hundred dollars; and that to-day, we are one thousand dollars in debt. From a business point of view, it simmers down to a question of whether we shall publish our Proceedings as a journal or as a volume. To publish them twice means an increase in our dues; and in talking with a number of men who do not attend the meeting, but are members, they told me that they objected to this increase of dues.

I think that the motion to have a committee consider whether we shall publish the Proceedings as a journal or as a volume is a good one, and I should like to see this committee appointed and to hear their report in the morning. The proceedings should either be published as a journal under the auspices of the State Society, or as a volume. Do not publish them twice and increase the dues, for that is one cause of the dissatisfaction in this Society.

DR. WILLIAM H. DONALDSON (Fairfield): I understand that there has been a canvass made during the last few months. When can we hear the results of it?

DR. O. C. SMITH (Hartford): At the April meeting of the Council, it was voted that each Councilor should confer with his county association members, find out their views on the subject, and report them to us. Hartford, New London and Windham counties felt that we had better go on as we have been doing, if the treasury could stand the drain; Litchfield County was opposed to the matter, if the dues had to be raised; the report from New Haven County was a mixed one, ten being for the present method, twelve approving of publishing annually as before, four preferring to have the reports appear monthly in the *Journal* and not in the annual publication, and one thinking it better not to publish the Transactions at all, and one wishing to have them published in the *Journal of the American Medical Association*. Therefore, the matter is very open. I think that it is apparent to the members of the Council Board that one of two things will have to be done: the dues will have to be raised at least a dollar, bringing them up to five dollars a year for the county and the State; or we shall have to go back to our original method of publishing the Proceedings in the annual volume. Personally, I feel that it is a mistake to go back to our former plan and not publish this journal. It is not only a Yale organ, but an organ of this association. It seems to me that five dollars is not a large tax for the State and County Society, for our meeting and entertainment, and for a journal besides. You pay five dollars a year for other medical journals. It is, I think, a short-sighted policy for a person to object to

paying eight to ten cents a week—the price of one cigar a week is all that it amounts to; and yet I am afraid that if we attempt to raise the dues, we shall have a decrease in the membership of the State Society. Some men would rather not come in than pay this sum. In that case, there is nothing left to do but to abandon the publication of the Proceedings in the *Journal*.

DR. WILLIAM H. DONALDSON (Fairfield): I want to speak of the point brought up by Dr. Smith, and also especially mentioned this morning in the report of our President, in regard to the difficulty in finding new members. It is certain that our accessions are falling off. While I do not object to paying for a cigar, which, of course, I do not smoke, I believe that I am right in feeling that the large tax that we have been paying has been a very important factor in keeping down our accessions to membership. Perhaps there are a large number who do not object to paying an extra dollar or two; but there are also a large number of men who do. I should like to see a journal published, not as the *Yale Medical Journal*, but as the *Transactions of the Connecticut Medical Society*. As such, we might support it; but if it increased our annual tax, I should oppose it.

DR. EDWARD S. MOULTON (New Haven): I should like to say one thing more. I do not want to criticise Dr. Rockwell's report from Tolland County; but I was present at that meeting of the Tolland County Society as a delegate from the New Haven County Society; and I can tell you that when this question came up Dr. Rockwell was not present, he having been called out of the room. Every man at that meeting personally expressed his opposition to continuing the publication of the Proceedings in the *Yale Medical Journal*, as they all calculated that it would cost at least one dollar a year more. Every single man there expressed that opinion, and hoped that the *Journal* would not be continued.

DR. EVERETT J. MCKNIGHT (Hartford): I suppose that I am responsible for all this trouble. I think that in my address, as well as in that of the President of this Society, there was something of this kind stated. The remark was based on something that I saw at the meeting of the Pennsylvania State Medical

Society. They publish their Proceedings in their own Journal, which is a good and very successful one.

DR. WILLIAM H. CARMALT (New Haven): They have a much larger membership.

DR. EVERETT J. MCKNIGHT (Hartford): That is true, of course; but I thought that possibly this State Society could publish such a journal and bring it out in monthly instalments, instead of publishing their Transactions in the annual volume. To have both seems an unnecessary expense to me. It does seem as if this Society were large enough to support it without a great tax on its membership; but if not, we must go back to the old way of doing it. I should like to see a journal of the State Society in a good shape without too great expense.

DR. WILLIAM H. CARMALT (New Haven): It seems that we cannot continue the arrangement that we have now. We certainly cannot carry on a Journal of the Society alone. We have either got to go back to the old plan of the Transactions published yearly and edited by the Secretary, whoever he may be; or else keep on with the present arrangement. I said this morning all that I think I ought to say. I do not see any reason for us to have another committee appointed to consider the question. We know the situation, and can decide now as well as to-morrow morning; and we had better decide it now. I do not know whether it is in bad taste, but I wish to move that we discontinue the *Yale Medical Journal* and publish our own Transactions in a yearly volume, under the editorship of the Secretary of the Society.

DR. GUSTAVUS ELIOT (New Haven): No one knows so much about this as the Secretary. I should be very glad to hear his views.

THE SECRETARY: About seven years ago, the cost was one thousand dollars to publish a yearly volume of Transactions. In 1910, the total cost was \$2,535.22. This year I imagine it will be about twenty-five hundred dollars all told; that is, if one thousand volumes are published, as is done every year. Of course, the cost of printing has gone up; but I should think that if we published the Transactions in a yearly volume only,

and not in the *Journal*, we could save a thousand dollars; so that I should estimate the cost of one thousand copies of the Transactions at fifteen hundred dollars.

THE PRESIDENT: I am a little bit mixed. I understand Dr. Carmalt's motion to be a laying on the table of the subject. Otherwise, the original motion prevails.

DR. WILLIAM H. CARMALT (New Haven): I did not intend that disposition of it at all. I think that perhaps you had better take a vote on the motion of Dr. Willard.

DR. FREDERICK B. WILLARD (Hartford): My motion was not seconded.

DR. WILLIAM H. CARMALT (New Haven): Then I will make a motion.

THE PRESIDENT: Please state it.

DR. WILLIAM H. CARMALT (New Haven): I make the motion that the Society discontinue the publication of the Transactions in relation to the *Yale Medical Journal*, and return to the publication of the Transactions in one volume yearly, under the editorship of the Secretary of the Society, whoever he may be.

This motion was seconded.

THE PRESIDENT: Those in favor of this motion signify it by saying "aye"; contrary, "no." It is a vote.

DR. WILLIAM H. DONALDSON (Fairfield): At the Scientific Session this afternoon a vote was passed referring to the House of Delegates Dr. Noble's paper on "The Responsibility of the Insane."

THE PRESIDENT: That comes before us under Miscellaneous Business, which is in order now.

It was moved by Dr. Eliot, and duly seconded, that the paper of Dr. Noble be referred to the Committee on Public Policy and Legislation.

DR. WILLIAM H. DONALDSON (Fairfield): My reason for mentioning the matter was that the suggestions made by Dr. Noble regarding medico-legal questions might be referred to the Society and some action be taken now, without waiting another year.

A motion has been made and seconded that it be referred to the Committee on Public Policy and Legislation.

DR. GUSTAVUS ELIOT (New Haven): It was not in a spirit of levity that I made that motion. We took the same action in another society, with the idea that the Committee might formulate some plan and bring it up for legislation.

DR. WILLIAM H. CARMALT (New Haven): The vote of the New Haven Medical Society, to which Dr. Eliot refers, was that the member of the Committee on Public Policy and Legislation from that county bring it before the Committee, with a view to having a conference between that Committee and a similar committee of the Bar Association of the State; so that these two committees together might be able to present the matter before the Legislature.

DR. EVERETT J. MCKNIGHT (Hartford): The Committee on Public Policy and Legislation has for two or three years been trying to get such a meeting between them and a similar committee of the State Bar Association, and have been unable to get the Bar Association to do anything. The judges are in favor of such a law, but the lawyers are not. Our request that a Committee be appointed to meet with us has had no attention whatever.

DR. FRANK K. HALLOCK (Cromwell): I may state that there is a movement on foot by the State Bar Association to appoint a Medical-Legislative Committee to meet with our Committee; and if that goes through, then perhaps we can get some legislation that we all desire.

THE PRESIDENT: I understand that there is a motion before the house that Dr. Noble's paper be referred to the Committee on Medical Legislation. All those in favor will signify it by saying "aye"; contrary, "no." It is a vote.

THE SECRETARY: Last year, through the Chairman of the Board of Councilors, two amendments to our Constitution and By-Laws were introduced; and, according to Chapter XIV. of our By-Laws, which says, "These By-Laws may be amended at any annual session by a majority vote of all delegates present at that session, after the amendment has been laid on the table until the next annual session," these amendments may be adopted now. The amendments are as follows:

The first is an addition to Chapter VII., Section I, which reads: "The Council shall consist of one Councilor from each county, and the President and Secretary *ex officio*. It shall be the Finance Committee of the House of Delegates. Five Councilors shall constitute a quorum." Then this was the amendment offered last year: "The Board of Councilors shall appoint from its own members two members, who, with the Treasurer of the Society, shall constitute a sub-committee to be designated a Committee on the Permanent Funds, whose duty it shall be to advise on the investment of such funds as the Society may have or receive by bequest or donation, according to the laws of the State of Connecticut governing trust funds. This Committee shall, through the Chairman of the Council, recommend to the House of Delegates the disposition to be made of the permanent funds, both principal and income."

This amendment was proposed by Dr. Carmalt at the meeting of the Council, and subsequently adopted by the Council and introduced into the Report of the Chairman of the Council, last year.

The other amendment offered was merely a change in the wording of Section 5, Chapter VIII., which defines the duties of the Committee on Honorary Members and Degrees. Now it reads, "The Committee on Honorary Members and Degrees shall present annually to the House of Delegates the names of not more than three eminent physicians, not residents of this State, as candidates for honorary membership in this Society. Such candidates may be elected Honorary Members, in accordance with the provisions of Chapter I., Section 8, of the By-Laws." This Committee has not presented any names for a number of years, though it says that they "shall" do so; and the amendment is to substitute the word "may" for the word "shall," making it read, "The Committee on Honorary Members and Degrees *may* present annually to the House of Delegates," etc.

These are the two amendments to the By-Laws that have been laid on the table for a year, and should come up now for adoption or rejection.

DR. EDWARD S. MOULTON (New Haven): I move that these amendments be adopted.

DR. WILLIAM H. DONALDSON (Fairfield): I do not think that we can vote on the two amendments together.

THE PRESIDENT: No, we must take them separately.

DR. WILLIAM H. DONALDSON (Fairfield): I move the adoption of the first amendment.

The motion was seconded and carried.

DR. WILLIAM H. DONALDSON (Fairfield): I also move the adoption of the second.

The motion was seconded and carried.

THE SECRETARY: About three weeks ago, I received a communication from the Secretary of the American Medical Association concerning a National Department of Public Health, as provided by the Owen Bill. With your permission, I will read it.

Dr. Steiner read the letter, which was as follows:

AMERICAN MEDICAL ASSOCIATION,

535 Dearborn Ave., CHICAGO, May 1, 1912.

DR. WALTER R. STEINER, *Sec'y*,
Connecticut State Medical Society,
4 Trinity St., Hartford, Conn.

MY DEAR DR. STEINER:—As Chairman of the Committee on National Department of Health, Dr. J. B. Murphy desires that your state association shall pass resolutions endorsing a bill to establish an Independent Public Health Service, now before the Senate, known as the Owen Bill, Senate Bill No. 1, and that through its officers, or a properly appointed and authorized committee, your Association shall urge the passage of this bill, and that arrangements shall be made so that one or two members will see the representatives and both the senators from your state for the purpose of explaining to them the benefits to be derived from this measure.

Kindly advise Dr. Murphy of the position these men hold with regard to the bill.

Very truly yours,

ALEX R. CRAIG,

Secretary.

THE PRESIDENT: It seems proper that we should take some action in regard to this matter, if we believe in the bill. The subject is open for discussion.

DR. WILLIAM H. DONALDSON (Fairfield): It was my purpose to offer at some of our meetings a motion endorsing the Owen Bill. At the proper time, I will move that the President and Secretary be instructed to see our Senators and Representatives from the State of Connecticut, either in person or by letter, and request them to give all their influence in favor of the passage of the Owen Bill. I believe that we are almost unanimous in support of the bill, and I will make that motion now.

DR. EDWARD S. MOULTON (New Haven): As a matter of practical politics, I would suggest that the President and Secretary be empowered to appoint some member of the Medical Society who is personally acquainted with these Senators and Representatives to call upon them personally or write them a letter. I think that this would be likely to have a better effect than would simply the receipt of a letter from someone that they did not know.

DR. EVERETT J. MCKNIGHT (Hartford): That has already been done. It will be some time before this bill comes before the House of Representatives; but both of our Senators and all our Representatives have been approached by men whom they know. I think, however, that the motion of Dr. Donaldson would be very appropriate, giving the official sanction of the State Society to the request; and I sincerely hope that it will be adopted.

DR. WILLIAM H. CARMALT (New Haven): Of course, the Committee on Public Policy and Legislation are up to the details of the matter; but I think that it would be desirable to have them backed up by a resolution of this Society, and I will second Dr. Donaldson's motion.

THE PRESIDENT: All those in favor of this motion will signify it by saying "aye"; contrary, "no." It is a vote.

THE SECRETARY: The other item that I have to bring before you is an invitation from the Rhode Island Medical Society, which will hold its one hundredth annual meeting on June 12th and 13th, 1912, at Providence. The Society desires that we send delegates who will surely attend. I thought that it might be a courteous thing for us to send the Rhode Island Medical

Society our greetings and felicitations on the celebration in June of their one hundredth annual meeting.

DR. GUSTAVUS ELIOT (New Haven): I move that the Secretary be instructed to send them our felicitations.

The motion was seconded and carried.

THE PRESIDENT: With regard to the establishment of a National Bureau of Public Health, I may say that Senator Brandegee is a great friend of mine, and I have written to him two or three times with reference to the matter. Immediately after the orations of Senators Bull and Jones, I wrote him a long letter. He is coming to New London soon, and I will then take an opportunity to impress upon him the absolute necessity of standing by that bill.

DR. O. C. SMITH (Hartford): A matter was brought up this morning before the Council, and at first there was some discussion as to whether it was proper to bring it before the House of Delegates or not; but it was decided that it was proper to do so. It was a communication from the Medical Society of New Britain—a long communication. I do not know whether you want me to read it all. It refers to a midwife whose license they desire to have revoked.

NEW BRITAIN, CONN., May 20, 1912.

DR. O. C. SMITH,
Councilor.

DEAR DOCTOR:—The Society of Regular Physicians of New Britain, whose members are for the most part also members of the Hartford County and Connecticut State Medical Societies, desires to bring to your official notice a complaint. We ask you as councilor to bring up at the proper time and place the question as to why we of New Britain have been treated as we have by certain brother members of the State Society, more particularly those who comprise the larger part of one of the official state boards. We feel that the gentlemen comprising this board have by their action, at once and for all time, established an undesirable and dangerous precedent, which may serve in the future to work much harm from the standpoint of the general public health and opens the way at once for a more frequent violation of the medical practice act.

The complaint to which we refer is based on the following case:

In the fall of 1910, it was brought to our notice that one, Eva Ginsberg, a licensed midwife, was engaging in the practice of medicine and gynecology in a rather wholesale fashion, patients coming to her even from out of town for treatment and advice.

Considering the fact that this woman, some five years previously, had been convicted of manslaughter following criminal abortion, a felony for which she had served one year in jail, we deemed that she was not a fit person to continue the practice of midwifery. Therefore, on December 2, 1910, we furnished the State Board of Medical Examiners with a certified copy of Mrs. Ginsberg's conviction, asking them to request the State Board of Health in their official capacity to revoke her license as midwife. Dr. Tuttle, secretary of the State Board of Examiners, immediately forwarded to the State Board of Health a request signed by every member of his Board that Mrs. Ginsberg's license be revoked. We desire to emphasize at this point that the action of the State Board of Examiners was both prompt and unanimous. On January 17, 1911, the State Board of Health held a special meeting, at which a committee from the Society of Regular Physicians of New Britain appeared personally and formally to press our complaint and explain our views on the matter in question. The State Board of Health gave our committee to understand that, while they could revoke the license, yet they feared that Mrs. Ginsberg might appeal from their decision to the courts, who might fail to uphold their judgment in the case, because of the fact that so long a time had elapsed between the commission of the crime and the application for the revocation of the license. They have since admitted, however, that the Statute of Limitations has no application in this case.

To give the case some odor of recency, the State Board of Health told our Committee that, if the Society could convict the midwife of the practice of medicine without a license, such conviction would in their own language "have some influence with the Board in the willingness to take up the former matter." We accordingly collected evidence at the expense of a great deal of time and labor, and did convict her in May, 1911, before our Police Court, of practising medicine illegally. She appealed to the Superior Court, her case coming up in the fall term of 1911, at which time she vacated her appeal, and was fined one hundred dollars. Thereupon, in October, 1911, we notified the State Board of Health of this conviction, again requesting them to revoke her license, having the conviction of a misdemeanor to add to her previous one of 1905 as a felon. Our notification to the State Board of Health at this time took the form of a personal interview between a member of our committee and three of its medical members, two of whom assured our committeeman of their prompt action. We heard nothing further, however, from the Board of Health, and in January, 1912, the Society appointed a committee to draft a letter to the Secretary of the State

Board of Health, to ascertain what action, if any, they intended to take in the long-delayed Ginsberg case. No attention whatever was paid to this communication; wherefore, on February 6, 1912, we appointed a committee of one to write another letter to the Board, in which it was stated that in the event of their continued ignoring of our appeal we would feel constrained to bring the matter to the attention of the Governor. To this communication we received a prompt reply, stating that our notes had been received too late for the regular quarterly meeting, but that a special meeting would be held during April for the purpose of hearing from all concerned in the case in question. This special meeting was held May 3, 1912, and the same committee that attended the first State Board meeting was present as our representatives. Mrs. Ginsberg and her lawyer, Mr. Goodhart of New Haven, also attended. Our case was recapitulated by our committee, and then Mrs. Ginsberg's lawyer was seemingly allowed to take upon himself the further conduct of the meeting, even to the extent of insulting one of our committee, without protest from the presiding officer. A few desultory questions were put by the members of the Board, the chief of which was to ask whether or not Mrs. Ginsberg had been conducting herself in a proper manner since her last conviction. The character of this question, together with the attitude of indifference on the part of most of the Board, gave our committee the impression that the atmosphere was decidedly antagonistic to our interests. At the conclusion of this meeting, the Board went into executive session; and on May 6, we were notified that the only evidence offered that could be considered by them was the conviction of Mrs. Ginsberg in the Superior Court of Hartford County in 1905 (that of manslaughter, because of criminal abortion). Thus we arrived at precisely the original point from which we had started.

To recapitulate: We set about to obtain the revocation of the license of a notorious abortionist. Because of the lapse of time between the crime and our complaint, we were advised by the State Board of Health to prove some more recent charge against the woman, in which case they would feel warranted in considering seriously the revoking of the license on the 1905 charge. We secured a conviction of illegal practise of medicine (which we, as well as they, understood to be merely a misdemeanor in the eyes of the law); we notified the Board of this conviction; we were invited to a special meeting, and after having received a square deal at the hands of the courts, were promptly and flatly turned down by those of our own profession, co-members with us of the State Society.

The final outcome of this case so affected the public press, that a prominent newspaper came out the following morning, gloating in large headlines on the front page, over the fact that the New Britain doctors had been worsted in their attempt to persecute a much-abused woman.

They further delighted to state, in heavy type, that this woman had been allowed during the meeting to say of one of our committee, "A hog has no honor!"

We append a separate sheet containing in outline some of the cases on which Mrs. Ginsberg was convicted of the illegal practice of medicine.

In closing, we trust that you will grasp the fact that the State Board of Health has impressed us as being afraid to have this woman appeal her case to the Court, should they have decided against her. Such action on her part would not be unwelcome to us, as we fail to see the objection to carrying a case of this type to the last appeal. We have, however, a strong objection to the establishment of the far-reaching precedent which has been instituted by the Board of Health's decision in this matter. We deem that a satisfactory explanation is due us, as to why our State Board of Health, composed largely of practitioners of medicine, members of the State Society, has seen fit to set at naught the endeavors of a respectable body of professional men to rid their community of a notorious and disreputable law breaker. Can you secure this explanation? Is it possible to have this case reopened, and the decision of a Board of Health revised?

It is difficult for us to see the advantages arising from membership in an organization whose support to its members on vital occasions is so conspicuously absent.

Thanking you for the assistance which we are sure you will give us, we are,

Sincerely,

THE SOCIETY OF REGULAR PHYSICIANS OF NEW BRITAIN.

JOSEPH N. POTTS, *President*.

JULIUS HUPERT, *Secretary*.

GEO. H. BODLEY.

CATHERINE H. TRAVIS.

H. STROSSER.

ROBERT M. CLARK.

A. ANDERSON.

THEODORE G. WRIGHT.

T. EBEN REEKS.

S. W. IRVING.

T. C. HODGSON (per G. H. B.).

M. W. MALONEY.

W. W. BRACKETT.

E. P. SWASEY.

E. T. FROMEN.

Below is a résumé of a few of the cases which were used in convicting the Ginsberg woman of illegal practice of medicine:

1. Call to attend a woman who had been delivered two weeks previously by another midwife; patient was acutely sick; probably with general sepsis. Prescribed local treatment consisting of douches, and general treatment consisting, among other things, of hypophosphites, quinine and cathartic pills. The Ginsberg woman made five visits to

this case. Charged the people \$50, but was able to collect only \$30, making \$6 per visit.

2. Consulted by a woman who had never borne children and who had never been pregnant. Patient made two visits, for which she was charged \$60, but Mrs. Ginsberg only collected \$10. Treatment here was internal medicine, tampons.

3. Woman whose youngest child was two years old, and who was not pregnant at the time of consultation, was treated for supposed gynecological condition locally. Patient made two visits and paid \$10.

4. Child two years old suffering with general convulsions. Treated by the Ginsberg woman, who made three visits, receiving \$25. Internal medicine and external application were used in this case.

Several of the better cases we have mislaid and have no time at this moment to look them up. The above are simply barest outlines and are meant to serve as types only.

THE PRESIDENT: Dr. Swasey, have you anything that you would like to say on the subject?

DR. ERASTUS P. SWASEY (New Britain): It seems to me that the case has been well presented before the House of Delegates by the Chairman of the Council, and I do not know that I can say anything further of importance. It seems to me that it is within the State law for us to have the power to settle this satisfactorily, and I think that it can be done before the meeting closes.

DR. WILLIAM H. DONALDSON (Fairfield): I regret exceedingly that this matter should be brought up before the House of Delegates, as it seems to me a matter that should properly be decided by the Council and not by the House of Delegates. If, however, we have to take action, I think that we should consider it after we have heard from those who know something about it. Maybe Dr. Garlick and Dr. Tuttle, who have been here all day, could give us some information.

DR. O. C. SMITH (Hartford): Dr. Garlick expressed himself freely on the subject when he was here.

DR. WILLIAM H. DONALDSON (Fairfield): I move that the matter be laid on the table, and brought before the House of Delegates to-morrow; and that we try to have the Secretary of the State Board of Health here at that time, so that we

may hear from that side of the question. Dr. Townsend is the Secretary of the Board of Health, I believe.

DR. WILLIAM H. CARMALT (New Haven): Why does not the Board of Health take action? They have all the evidence they want, the written request of all the members of the Examining Committee.

Dr. Donaldson's motion was seconded.

DR. EVERETT J. MCKNIGHT (Hartford): I am not a member of the House of Delegates, but I wish to say a few words regarding the matter. I understand that my name has been dragged into it within the last few weeks. I have received only one communication in regard to it from the New Britain Medical Society. Its members are disgruntled because the Committee on Public Policy and Legislation has not prosecuted this woman. We have no right to do it. Our duties are laid in the By-Laws, and it is not this Committee at all that has charge of such things. I think that they are mixed up by the fact that a few years ago we had a committee of the County Medical Association to look after such prosecutions. As Chairman of that Committee, I brought charges against two doctors who were expelled, but when Dr. Herman Strosser was President of the New Britain Medical Society, he failed. There is no such committee in existence now. I understand that there has been a good deal of feeling against the State Society because the Chairman of the Committee on Public Policy and Legislation has not done something.

DR. O. C. SMITH (Hartford): At the meeting of the New Britain Society there was some feeling displayed; it was not feeling against the Committee, however, but resentment that their communications had been generally neglected. Dr. Townsend had written to the Chairman of the Committee on Public Policy and Legislation, but had received no reply; and they were getting so provoked about it that they could not contain themselves. There is nothing said in this communication to-day with reference to the Committee on Public Policy and Legislation. I explained that the Committee were doing everything that they could, and I do not think that that phase of it is to be considered.

DR. EVERETT J. MCKNIGHT (Hartford): I received one letter asking me to be present at the hearing. This letter was mislaid. I think that it must have been accidentally destroyed at my house. It did not, however, seem to me just right to let a woman go on practising midwifery for six or seven years after the offence, and then revoke her license. I conferred with some members of the State Board of Health, and they said that they had been advised legally not to revoke it on that charge. On the night of the hearing I had a very sick patient out of town; and, as I knew the attitude of the State Board of Health regarding the matter and was not conversant with the whole situation, I did not think it necessary to stay at home for the meeting. The next day, I called up Dr. Townsend on the telephone to know what had been done; and he said that only one member of the New Britain Medical Society had appeared to speak against her, and that there had been absolutely no evidence offered of any abortion committed since the original one. Her counsel had advised them not to revoke her license. That is all that I know about the case.

Dr. Donaldson's motion to lay on the table was carried.

DR. GEORGE N. LAWSON (Middle Haddam): At our meeting in Middlesex County, Dr. Albert Field of East Hampton sent in his resignation. He is sixty-three years old and quite feeble, and has not attended our meetings for some years; and he considered it a drain on his purse to pay the regular fees, when he did not get anything out of it. Our Society voted not to accept his resignation, but to request the House of Delegates of the State Society to remit his taxes. I will make a motion that the taxes of Dr. Field be remitted.

The motion was seconded and carried.

THE PRESIDENT: The Council will meet at 8.15 to-morrow morning in this room, and the House of Delegates at 8.30 in the same place.

It was moved and seconded that the House of Delegates adjourn until 8.30 the following morning. Carried.

Adjourned at 6.15 P. M.

MORNING SESSION, THURSDAY, MAY 23, 1912.

The meeting was called to order at 8.35 A. M. by the President, Dr. John G. Stanton. There were present Dr. Oliver C. Smith, Dr. William H. Carmalt, Dr. Patrick J. Cassidy, Dr. Samuel M. Garlick, Dr. George M. Burroughs, Dr. George N. Lawson (councilors), and Dr. Thomas G. Sloane, Dr. Erastus P. Swasey, Dr. Frederick B. Willard, Dr. Charles D. Alton, Dr. Edward S. Moulton, Dr. Ernest H. Arnold, Dr. Gustavus Eliot, Dr. Edwin C. Chipman, Dr. George H. Thompson, Dr. Myron P. Robinson, Dr. Alvin E. Barber, Dr. Clarence E. Simonds (delegates), the President and the Secretary.

The Secretary read the minutes of the preceding meetings of the House of Delegates, and these were approved as read.

The next business being the election of officers, the Secretary read a list of nominations of officers for the ensuing year prepared by the Council, acting as the nominating committee. (See pages 50-51.) There were no other nominees.

DR. WILLIAM H. DONALDSON (Fairfield): I move that the Secretary be instructed to cast a ballot for the list of officers as nominated by the Council; and, in doing so, I wish to express the feelings of the members from Fairfield County in that the list contains the name of one of the members of our County Society whom we delight to honor, and to thank you for the honor conferred upon Fairfield County in the nomination of Dr. Barber. He is still one of the younger boys in spirit, although he has been considerably over fifty years (fifty-five I think) in the practice of his profession, and likely to be so for a good part of another fifty years. I wish to thank you in the name of the Fairfield County Society for the honor conferred upon it and upon Dr. Barber in nominating him for one of the offices.

The motion was seconded and carried.

The Secretary reported that he had cast the ballot for those whose nominations had been just read. They were then declared elected.

THE PRESIDENT: The next order of business is the consideration of the matter referred to us by the New Britain

Medical Society, which was tabled yesterday. I shall first call upon Dr. Joseph H. Townsend of New Haven, the Secretary of the State Board of Health, to present their side of the case before us.

DR. JOSEPH H. TOWNSEND (New Haven): I have looked over this rather remarkable document from the physicians of New Britain, and am sorry that I did not have it at an earlier date, when I could have produced the documentary evidence of what I have to say. I have copies of all the letters that I have written to the New Britain people, and also the original letters received from them; so that what has passed between us is a matter of record. What I have to say now, however, is from memory.

I do not believe that the gentleman who wrote this had documentary evidence. He must have trusted to his memory and his imagination. It says that on January 17th the State Board of Health held a special meeting. It did not; that was our regular monthly meeting. The regular meetings are held quarterly; but special meetings are held in the meantime, as matters requiring attention may arise. This communication sent to me was dated December, 1910; and the offence that Mrs. Ginsberg had committed, for which we were asked to revoke her license, was committed in September, 1905, more than five years previously. I sent a reply to this letter to Dr. Tuttle, stating that it had been received; but that, owing to the lapse of time since the offense, the Board would hesitate to revoke her license. As I remember, this matter came up at our January meeting, but the Board did not take any action then; and I think that it was at the April meeting that the committee from the New Britain Society appeared before us. Then, in response to their request, we took steps to revoke her license, as we had done in other cases. We had her appear before us at a special meeting in May, in order to show why her license should not be revoked. She appeared, with her attorney, Mr. Goodhart, of New Haven. The result was that the Board of Health were in doubt what to do about the matter. It was decided to lay it on the table, and would have stayed there, had not the New Britain men been so insistent.

I may say right here that there is a statement in this communication to which I wish to take exception. It says: "Recently the State Board of Health told our Committee that if the Society could convict the midwife of practising medicine without a license, such conviction would be of influence with the Board in their willingness to take up the matter." I do not know what they refer to. The Board of Health is a Board. I do not know whether they mean that one of the three medical men on it gave them this information, or the Board itself. I may have written the letter, but do not recollect doing so. If I did, it is not quoted correctly. I do not think it looks well for them to take a man's sentence and cut it in two, giving it a different subject. If I stated anything, I think I must have stated that—at the time of the meeting in May, I must explain, Mrs. Ginsberg had already been convicted in the Court of New Britain, on three counts, of the illegal practice of medicine. She had taken an appeal to the Superior Court, and her appeal was then pending. Therefore, this expression here, if it was used at all, was used after the meeting in May, and after she had been convicted; so I can state that there was no bargain that if they secured her conviction, we would take the matter of revoking her license up; because they had already secured her conviction, and I did not know that they had a prosecution against her in the second case until I saw it in the Hartford paper. It does not look well to split a man's sentence and give it a subject different from the one with which he used it. If I wrote such a letter, I have a copy of it to which I can refer.

We laid the matter on the table, as I have said, and hoped that it would stay there; but in the beginning of this year we got a petition from fourteen members of the New Britain Medical Society—although there were thirty regular practitioners there. It asked us to take definite action on the application to revoke her license, and to say whether we would or would not revoke it. They say that their communication did not have prompt attention. I had had a good many communications from them; and when this one came, I waited to put it up to the Board, instead of answering it myself. After it had been in my

hands for two weeks, I received from them a letter asking what we would do; and saying that if we would not do anything, they would refer the matter to the Governor. They say that this is what started us to action. This is not so, because the Governor has no more power to override the action of the State Board of Health than the President of the State Medical Society has. The Governor can remove the members of the Board from office, after a hearing; but that is all.

When I got the second letter, I, of course, acknowledged its receipt at once, regretting that I had not acknowledged the receipt of the first one before then, and telling them that the delay had been caused by my bringing the matter to the attention of the Board. We held another special session in May of this year, and I sent out invitations to those interested in the matter to attend it, including Dr. Brackett, Dr. Strosser, Mrs. Ginsberg and her attorney, and the attorney who prosecuted her. At that meeting, Mrs. Ginsberg appeared, and Dr. Gillin; and we held the hearing. Dr. Brackett did not have very much to say, as he had no personal knowledge of the matter. He stated that he had appeared only because he was the President of the New Britain Medical Society at the time the case came up. He had no acquaintance with Mrs. Ginsberg. The charge was made by Mrs. Ginsberg and her attorney that the trouble had been due entirely to the jealousy of a Polish doctor named Hupert, who practised among the same class of people as she did. I do not know how that is.

After the hearing, the Board went into executive session, and voted that, in view of the long lapse of time since her conviction on the charge of criminal abortion, they did not feel like revoking the license. Six members of the Board were present. We gave the matter careful and honest consideration, and did what we thought was right. There are several little knocks here, hinting that we were afraid to revoke her license because we did not want to appear in the Superior Court. It was nothing to us, if she appealed the case to the Superior Court. It would then have been off our hands. Also there are statements that we are afraid of Mr. Goodhart. Now, if we had

been seeking popularity, I think that we would have gone with the New Britain men. They were more in number than we were, and I have some very pleasant friends there. We should have liked to carry out their wishes, if we could have done so honestly; but we thought that we could not do anything, owing to the considerable lapse of time. There is such a statute in effect in criminal proceedings that, had Mrs. Ginsberg been brought before the court at that time, she would have been protected by the Statute of Limitation. That is, a State's prison offense cannot be tried after the lapse of five years. The fact that there is such a law shows a certain justice and reasonableness in such a statute and such a view of the case.

I do not know of anything else that I should say. Are there any questions that you wish to ask?

THE PRESIDENT: Dr. Brackett, have you anything to say?

DR. WILLIAM WALKER BRACKETT (New Britain): *Mr. President and Members of the House of Delegates:* I wish to mention just a few points in regard to what Dr. Townsend has said. I think that you understand the course of the case pretty thoroughly.

First, in regard to this being a matter of personal persecution on Dr. Hupert's part, I would say that Dr. Townsend is in error. When the prosecution was started, he was in Europe; and when he returned, we got his services much against his will. Because he was a Pole himself, and talked the language that she talked and that the majority of the people among whom she was practising talked, we were able, through him, to obtain evidence. This matter came up among several other matters of a similar kind. Two years ago, the New Britain Medical Society endeavored to put a stop to the illegal practice of midwifery, medicine, etc. We investigated two men who were advertising quacks, and found them both legally licensed; and then this Ginsberg matter came up.

Now, in regard to my appearing at the last meeting of the State Board of Health and making a statement that it was not a personal matter: that was entirely true, but I did make the statement that we had asked for her license to be revoked on

the ground that she was not a proper person to practice in New Britain. She had been a notorious abortionist; there is no question at all about that. You all know how extremely difficult it is to get a conviction on that ground, but she was convicted. Whether she has been doing abortions since, we cannot state certainly. If we had the evidence that she has, we would prosecute her again. Five years had elapsed since her conviction, and in the meantime she had been doing a disreputable practice in gynecology. That, we know. We had three cases before the Police Court, and secured evidence in others before the Prosecuting Attorney; and we could have secured evidence in thirty more, if we had had time to gather it. The fact that she was a known abortionist and had been conducting a disreputable practice in gynecology, and also in diseases of children, was our ground for wishing her license revoked.

Before the Board of Health, her clever attorney stated that in the old country the midwife was a sort of good friend to all the people, and helped them out whenever they were in trouble. Well, as to that, in the morning, one day, a physician was called in the case of a child, and that afternoon she was called in. Before even looking at the child, she made a bargain to receive fifteen dollars for her services. This shows her good heart in helping out these people in their difficulties.

That is the ground on which we asked the State Board of Health to take action. We do not wish to appear as unduly criticising the State Board; but, with these facts and the fact that the State Board of Examiners, who had granted the license, unanimously asked for its revocation, we did feel that it was time for definite action to be taken. The way the case has gone, and the fact that this woman has come out with clean skirts, has, we feel, established a bad precedent. The newspapers have gloated over the outcome, and this discourages us in trying to get action in similar cases, at another time.

DR. WILLIAM H. DONALDSON (Fairfield): Before we proceed further, I think that the question as to whether this argument is being heard before the right body should be decided. Is it a matter for the House of Delegates? I believe it is one

for the Council, and should like to have a ruling of the Chair on the question.

THE PRESIDENT: The Council had it before them, and decided that it was not in their province, and that it should be referred to the House of Delegates. Dr. Swasey, have you any remarks to make?

DR. ERASTUS P. SWASEY (New Britain): I have nothing to say, because I am not intimately acquainted with the subject. I came into the case only a few days ago; and the details of it, I know nothing of. I simply know the woman's bad reputation; and that as she was convicted of a felony, she has since been practising medicine illegally. I think, therefore, that we have a right to expect that, even if there has been a long time since the commission of the crime, her license ought to be revoked.

THE PRESIDENT: Perhaps Dr. Bodley may have something that he wishes to say.

DR. GEORGE H. BODLEY (New Britain): I have nothing further to add to what Dr. Brackett has already stated. He has put the case as clearly as possible. I have no personal knowledge of what went on at the meeting of the State Board of Health, because I was not one of the Committee that attended it. We did all, however, feel that this matter had taken quite a little effort on the part of many of us, in order to collect the evidence in the case of the woman; and it also took a great deal of time.

I think I should like to state, however, before I do sit down, that we do not wish Dr. Townsend to take this matter as a personal one between him and us. He has simply been the one with whom we have had the most correspondence; and, being Secretary of the Board, he naturally has to bear the brunt of many things that perhaps belong to the entire Board. That, I think, is all that I have to say.

DR. EVERETT J. MCKNIGHT (Hartford): Regarding the jurisdiction of this body, if this matter has been referred to it by the Council, it is proper for us to act. It seems, however, that all we could do would be to offer a resolution expressing our views, and any request that we desire to make, to the State Board of Health.

There is one point that should be stated. As Dr. Townsend read the second clause of the law, it seems that the woman has a right to appeal to the courts. Now the Statute of Limitations does not apply to the Board of Health; but if she appealed the case, they would apply the Statute to it, and this would have great weight in deciding the case. I know that this was the point that decided the Board largely not to take it up; that if she appealed and it was taken to the Superior Court, they would probably throw it out on account of the lapse of time.

Personally, I want to do all that I can. I have been a little negligent, I know, in not devoting more attention to the matter than I have. Although I have no official duty in connection with it, yet I should like to make amends for my negligence. It seems to me to be a very delicate situation, and one that should be handled very carefully. I think that if the State Board of Health be asked to take it up and consider it over again, this would be proper.

THE PRESIDENT: Perhaps Dr. McKnight did not hear the statement of the New Britain Society. She did take the case to the Superior Court, but she vacated her appeal.

DR. EVERETT J. MCKNIGHT (Hartford): I mean in the case of the revocation of the license. She would then have the right to appeal for that to the Superior Court, and any judge would be inclined to throw it out on account of the Statute of Limitations.

DR. O. C. SMITH (Hartford): I think that one other word should be said. The Council knew nothing about it, except the appeal of the members from New Britain. At their request, I attended their meeting, a week ago Saturday evening. It was well attended; and I am sure that the feeling of the Board of Health that this was a matter of personal animus on the part of Dr. Hupert is an error. The members of the New Britain Society would not all have been at the meeting, if this were so. There was this feeling among them: that they had carried out their part, in compliance with the law, and had spent much time and money in getting evidence, without any result, so far as the Board of Health was concerned.

DR. JOSEPH H. TOWNSEND (New Haven): I want to contradict that most emphatically. I should like to see the documentary evidence of it. That is where they split a sentence.

DR. O. C. SMITH (Hartford): That was what someone on the Board of Health instructed them to do, to go ahead and get this fresh evidence, and then they would have a chance to get the license revoked. If that were not so, Dr. Brackett and Dr. Bodley would come forward and acknowledge it. If it is true that the members of the New Britain Society had complied with the requests of the Board and all the legal restrictions and then went before them, the Board should have had some sympathy with them. They feel, however, that from the first the sympathy was with Mrs. Ginsberg; and that they themselves were on trial before the Board, rather than this woman. They were cross-questioned, and things were made very unpleasant for them; and particularly, they were severely criticised in the newspapers.

DR. WILLIAM W. BRACKETT (New Britain): Regarding the suggestion made by the State Board of Health, Dr. Hupert and I came back and reported the matter to our Society within a very few days. In the report we made (that is, when we made the original application, before the prosecution for illegal practice was undertaken), we gave the fact that she was practising medicine illegally as the ground for our action; because we knew that revoking her license as a midwife would stop her illegal practice of medicine.

I am not positive, but I think that it was Dr. Wolff who made the suggestion. We reported to the New Britain Society that the suggestion had been made by some member of the Board that we go ahead and secure a conviction. We went ahead and got the evidence, so that the conviction was suggested at that meeting. I make that statement absolutely, positively, without question.

I am sorry that Dr. Hupert is not here. He is sick to-day, and could not come. We returned home within a few days, and made this report to our Society; so if it is a question between Dr. Townsend's memory and mine, I will say that I have two memories to depend upon—Dr. Hupert's and my own.

DR. EVERETT J. McKNIGHT (Hartford): I think that the New Britain Society is entitled to know why some definite action was not taken in the matter when it was first called to the attention of the Board of Health, two years ago. They then could have acted with justice, and this body is entitled to know why they did not do so.

DR. WILLIAM H. DONALDSON (Fairfield): I think that we are acting without a motion before the House. Would it not be proper that a motion be made?

THE PRESIDENT: We are discussing a matter taken from the table.

DR. WILLIAM H. DONALDSON (Fairfield): I think that before we go further, we should have a motion.

THE PRESIDENT: The subject is properly before the meeting.

DR. WILLIAM H. DONALDSON (Fairfield): In order to bring it definitely before us, I move that the House of Delegates request the State Board of Health to take a definite action in the matter of Mrs. Ginsberg, stating that in our opinion, acting only upon the evidence of the woman herself, who has confessed that she was guilty of illegally practising medicine, there is enough evidence against her to call for the revocation of her license within the meaning of the Medical Practice Act as it stands. Now, it seems to me, gentlemen, that all the provisions of our Medical Practice Act mean that a license to practise medicine or midwifery should be held only by a person of proper character. This woman admits that she has been doing crooked things. She has been convicted of a felony; and even though this was committed five years before the case was brought before the State Board of Health, or seven years ago now, that does not make it any less criminal; and I believe that before the Superior Court there could be only one decision. She acknowledges that she is not a fit person to have a license to practise midwifery or any other branch of medicine; and, as members of the State Medical Society, we should back up the men who have come before us with this petition; I believe that it is our duty, as members of this Society, to give them our support. Therefore, I would move that resolution. All the evidence that

we have heard goes to show that this woman is practising midwifery and is not a proper person to have such a license. Therefore, the Board of Health should have revoked this license, and it is not too late now to do so.

DR. ERNEST H. ARNOLD (New Haven): I second the motion.

DR. FREDERICK B. WILLARD (Hartford): I should like to say that I am in entire sympathy with what Dr. Donaldson has said, but that I think that the form in which he has put the motion is not quite correct. The Board of Health has already passed upon the case. What we should do is to instruct the Chairman of the Committee on Public Policy and Legislation to ask the Board of Health to review the case.

DR. WILLIAM H. DONALDSON (Fairfield): I will accept that amendment to my motion.

The amendment was seconded.

DR. GUSTAVUS ELIOT (New Haven): We all, I think, feel a most hearty sympathy with the New Britain men in their desire and their efforts to rid their city of disreputable practitioners. This matter that has come before us, however, is entirely new matter; and I should like to hear from some of the New Britain members what action they would like to have us take, and from the Council, what action they would recommend us to take. I should also like to inquire whether these charges, irrespective of this conviction seven years ago—that is, whether her pleading guilty of the charge of illegally practicing medicine—would be an adequate cause for the State Board of Health to revoke her license. It is a strange thing to bring up a matter so old and expect action upon it; but if her conviction on the ground of illegal practice recently would be sufficient cause for the revocation of her license, I should like to know it. I should like to know what the Secretary of the State Board of Health thinks.

DR. CHARLES E. SIMONDS (Willimantic): It seems to me, as I understand the matter so far, that the New Britain Medical Society had no standing before the Board of Health. According to the law, the State Board of Health may revoke the license of anyone convicted of a felony, provided the matter is brought to their attention by the Medical Examining Board.

DR. WILLIAM H. DONALDSON (Fairfield): The whole State Board of Medical Examiners signed the petition.

DR. FREDERICK B. WILLARD (Hartford): The Medical Examiners have passed judgment upon the case, then? It seems to me that this motion before the House is all right and proper; but I do not see why the matter cannot be settled by the State Board of Health and the Medical Examining Board between them, without action by this body. We can do no more than make a recommendation.

THE PRESIDENT: That is the purpose of the motion.

DR. SAMUEL M. GARLICK (Bridgeport): This matter appeals to me with a very large interest, although primarily I was not fully acquainted with the facts. It takes on a much larger aspect than this immediate, acute one. We are, in this State, in my judgment, making a very great mistake, which the medical men will some time find very much to their embarrassment; and, I believe, to their detriment. I think that this matter, now that it has come up so acutely, will in some way receive careful and wise adjustment. At present, we are filling the State of Connecticut with incompetent midwives. That is the long and short of it; and the law compels us to do so. Now, in order to obtain a license to practice, a medical man must come up before the Board of Examiners and be examined in English. If he does not understand English well enough to make himself plain, he cannot get through the examination; but a midwife may be examined in any language under the sun, bringing in somebody who is presumably competent to translate to the Medical Examining Board her answers to their questions. She then gets a certificate. The great body of these foreign-speaking midwives, without the possibility of our frankly and plainly showing that they are violating the law governing the practice of their profession, are doing so. That fact, perhaps, does not have immediate relation to this particular acute case; but this case will have a bearing on the future, and I sincerely hope that in the right way, in some way, the New Britain men may be sustained.

DR. O. C. SMITH (Hartford): Dr. Donaldson made a motion. Was it seconded? (Dr. Stanton answered in the affirmative.)

Dr. Willard also offered an amendment to Dr. Donaldson's motion, and it was accepted by him.

DR. JOSEPH H. TOWNSEND (New Haven): There have been several questions asked. Dr. McKnight wanted to know why we delayed so long. When the matter first came up, I immediately wrote my opinion that the Board of Health would hesitate to revoke the license on account of the length of time that had elapsed since the committing of the crime; and when we laid it on the table, we thought that it would remain there. We did not want to offend the New Britain men, but could not comply with their request and thought it most satisfactory to table the matter. We regret now that we did not settle it at the time, but that was our reason for not taking any action.

In regard to a second conviction, all that we had to act on was the request to revoke the license because of the abortion. The other matter, that of illegal practice of medicine, could not be brought before us. The law says that the revocation of a mid-wife's license must be for crime committed in the practice of her business. If she practiced medicine illegally, that was not in her business.

As to its being a felony that she committed, a felony is generally defined as something carrying as its punishment a State's prison sentence. In that case, this was not a felony. It was a misdemeanor. The members of our Board have great sympathy with the efforts of the New Britain men to purify the profession; and if the matter had been brought to our attention within reasonable time, we would have revoked the license.

DR. WILLIAM H. DONALDSON (Fairfield): Do you think that Mrs. Ginsberg is a woman properly fitted to practice midwifery?

DR. JOSEPH H. TOWNSEND (New Haven): I guess, from all that I hear, that she is a bad woman.

DR. WILLIAM H. DONALDSON (Fairfield): Her own statement that she is guilty shows that.

DR. JOSEPH H. TOWNSEND (New Haven): Guilty of what?

DR. WILLIAM H. DONALDSON (Fairfield): She vacated her case in the Superior Court, and thereby acknowledged that she was guilty.

DR. JOSEPH H. TOWNSEND (New Haven): That question was not before us.

DR. WILLIAM H. CARMALT (New Haven): My sympathies in this matter are entirely with the New Britain physicians. They are trying legitimately and honestly to get rid of a disreputable woman, and the Board of Health have stood in their way. They may quibble about how long it was since the conviction for abortion, and all that; but where there is a will, there is a way. If they had wanted to do so, they could have got rid of her. The State Board of Health needs a little remonstrance from the profession in regard to their way of handling such matters. What was the exact form of the motion?

THE PRESIDENT: Dr. Donaldson, will you please repeat the motion?

DR. WILLIAM H. DONALDSON (Fairfield): The motion was that the Chairman of the Committee on Public Policy and Legislation be instructed to ask the State Board of Health to review the case.

DR. WILLIAM H. CARMALT (New Haven): To see whether, with the backing of the State Society, they can do what they ought to do. The woman is a criminal to-day, and I do not believe that any judge sitting would say that she is barred from punishment because of a conviction seven years ago; because she has been since that time continuing her action. While not caught in another abortion case, she is doing illegal work; and any judge, I think, would acknowledge that the State Board of Health would be justified in revoking her license. I feel very strongly that the Society ought to back up the New Britain men.

DR. ERNEST H. ARNOLD (New Haven): As the seconder of the motion, my sympathies are with the New Britain people; but I have also much sympathy with the State Board of Health, as certain technicalities stand in their way. The Secretary of the Board says that she has not been convicted of a crime, because the illegal practice of medicine is not a crime. Maybe our recommendation, therefore, will not help the State Board of Health. I should say that after this vote has been passed it might be well to instruct our Committee on Public Policy and Legisla-

tion to see whether the act now relating to midwifery, which now has a flaw in it, might not be amended so as to take care of such technicalities as it, at present, does not permit the removal of this person from the practice of midwifery.

THE PRESIDENT: All in favor of Dr. Donaldson's motion will signify it by saying "aye"; contrary, "no." It is a vote.

DR. EVERETT J. MCKNIGHT (Hartford): I hope that this resolution will be construed as not casting any reflection on the Chairman of the Committee. He could not take up the matter unless so instructed by this body. It was not in the province of the Committee on Public Policy and Legislation to take up the matter before this time.

DR. CHARLES E. SIMONDS (Willimantic): I want to invite you to come to Willimantic for your semi-annual meeting. We have good facilities for your entertainment, and as good railroad accommodations as any place in the State. We should all be glad to have you come there next October for the semi-annual meeting.

THE PRESIDENT: Will the gentlemen accept this invitation formally?

It was moved and seconded that the invitation of the Windham County Medical Society be accepted. Carried.

DR. WILLIAM H. CARMALT (New Haven): I move that the annual taxes of the State Society be four dollars.

The motion was seconded and carried.

DR. O. C. SMITH (Hartford): I move that the annual meeting for the coming year be held at Hartford on the usual dates.

The motion was seconded and carried.

DR. FREDERICK B. WILLARD (Hartford): I move that a vote of thanks be extended to Dr. Steiner, our retiring Secretary, for his conscientious and painstaking work during his term of service.

The motion was seconded and carried.

The House of Delegates adjourned at 9.35 A. M.

(3) Report of the Chairman of the Council, Dr. O. C. Smith (Hartford):

REPORT OF THE CHAIRMAN OF THE COUNCIL.

Mr. President and Gentlemen of the House of Delegates:

The first meeting of the Board of Councilors held during the past year occurred at the Hunt Memorial Building, Hartford, on May 24, 1911. Routine business was transacted. Dr. James M. Keniston, Middlesex County, moved that the President and Secretary be a committee to investigate the publication of the Transactions in the *Yale Medical Journal* and in the yearly volume of Transactions, for the purpose of reducing the expense of the same, and report at the first meeting of the Council after the present annual meeting. The motion was amended so as to make it merely a recommendation to the House of Delegates. The Council met the morning of the following day and discussed informally the publication of the Transactions in the *Yale Medical Journal* and in the yearly volume. On the afternoon of the same day the Council met at the Hunt Memorial Building, and elected officers for the ensuing year. Dr. Oliver C. Smith of Hartford was elected chairman, Dr. Walter R. Steiner of Hartford secretary. Dr. Walter R. Steiner was appointed editor of the Transactions; Dr. Charles J. Bartlett of New Haven and Dr. Frederick B. Willard of Hartford were named as his associates. Dr. William H. Carmalt of New Haven and Dr. Samuel M. Garlick of Bridgeport were appointed as the Auditing Committee. The salary of the Secretary was made \$150 a year. Dr. Samuel M. Garlick then moved that the Auditing Committee be, with the Treasurer, the finance committee of the Society's funds. The motion was carried. A vote of thanks was tendered the retiring President, Dr. Frank K. Hallock, for his brilliant address.

The next meeting was held at the Hartford Club, April 12, 1912. A letter was read by the Secretary from the editors of the *Yale Medical Journal*, the tenor of which indicated a disposition to discontinue the publication of the journal. A discussion followed. The President, Dr. John G. Stanton, suggested publishing the journal as a state organ. It was decided that the Councilors should obtain the opinions of the County Medical associations upon this subject, and report at the next meeting of the Council. The Auditing Committee reported upon the Gurdon

W. Russell Fund as follows: Amount invested in bonds, \$6955; balance on deposit, \$304. The fund is now drawing interest at the rate of four and a half per cent. Tentative nominations for the ensuing year were made, and a committee appointed to submit a list of delegates to the various state societies.

The last meeting occurred at the Hartford Club on May 17, 1912, six of the eight counties being represented. The tentative nominations made at the meeting of April 12, 1912, were ratified, and the Board of Councilors, as the nominating committee, begs leave to submit the following nominations:

President.

EDWARD T. BRADSTREET, *Meriden.*

Vice Presidents.

FREDERICK GILNACK, *Rockville.*

ALVIN E. BARBER, *Bethel.*

Secretary.

WILDER TILESTON, *New Haven.*

Treasurer.

JOSEPH H. TOWNSEND, *New Haven.*

Committee on Scientific Work.

Walter R. Steiner.

George Blumer.

The Secretary.

Committee on Medical Examinations and Medical Education.

John B. McCook.

Committee on Public Policy and Legislation.

Everett J. McKnight.

William B. Cogswell.

Charles J. Foote.

Elias Pratt.

Rush W. Kimball.

Seldom B. Overlock

Charles E. Stanley.

Eli P. Flint.

The President.

The Secretary.

Committee on Honorary Members and Degrees.

Frank K. Hallock.

Seldom B. Overlock

John G. Stanton.

Delegate to the American Medical Association.

D. Chester Brown.

The list of delegates submitted by the committee, consisting of the Chairman of the Board of Councilors and the Secretary, is as follows:

Maine—Frederick T. Simpson, Hartford; James M. Keniston, Middletown.

New Hampshire—Fritz C. Hyde, Greenwich; Samuel Pierson, Stamford.

Vermont—John B. Waters, Hartford; Charles J. Bartlett, New Haven.

Massachusetts—Henry Blodget, Bridgeport; Edward W. Smith, Meriden.

Rhode Island—Charles B. Graves, New London; Leone F. LaPierre, Norwich.

New York—George Blumer, New Haven; Frank T. Brooks, Greenwich.

New Jersey—C. Purdy Lindsley, New Haven; William S. Randall, Shelton.

Pennsylvania—Erastus P. Swasey, New Britain; Everett J. McKnight, Hartford.

The counties of Hartford, Middlesex and Tolland reported through their Councilors their desire to continue the publication of the Transactions in the *Yale Medical Journal*, provided it could be done without too severe a drain upon the treasury. Dr. Patrick J. Cassidy, New London County, reported upon the wishes of the members of his county association as follows:

Twelve desired the proceedings published in the *Yale Medical Journal* and in a separate volume; ten wished the Proceedings in a yearly volume only; four desired a monthly state journal; one wished no proceedings published; one desired the transactions published by the American Medical Association.

The Council expressed a desire to continue the provision made in 1911 for the payment of railroad fares and an allowance of \$25 to each for hotel bills.

CONDITION OF THE TREASURY.

The price for publishing the volume of Transactions and the *Yale Medical Journal* for 1911 was \$2,500, with an additional charge for extra pages and reproducing illustrations. Copies of the transactions for 1911 have been delivered to all members.

The Treasurer reports to the Council that on May 22 there is in the treasury, aside from the Dr. Gurdon W. Russell fund, \$405.45. The amount of taxes due and uncollected is \$654, as compared with \$511 in 1911 and \$429 in 1910.

Our indebtedness to the *Yale Medical Journal* is \$1,500.

The Auditing Committee, Dr. William H. Carmalt and Dr. Samuel M. Garlick, have examined the Treasurer's accounts, and find them correct.

As our deficit is increasing yearly the suggestion made by the Chairman of the Board of Councilors last year, that the annual dues be increased from four to five dollars, is especially emphasized at this time. If this proposal had been acted upon favorably there would be no deficit at this time.

NEW BY-LAW.

The following by-law is proposed by the Board of Councilors:

"The Board of Councilors shall appoint from its own members two members who, with the Treasurer of the Society, shall constitute a sub-committee to be designated a Committee on the Permanent Funds, whose duty it shall be to advise on the investment of such funds as the Society may have or receive by bequest or donation, according to the laws of the State of Connecticut governing trust funds. This committee shall, through the Chairman of the Council, recommend to the House of Delegates the disposition to be made of the permanent funds, both principal and income."

MEMBERSHIP.

It is obvious that the growth of our county societies is not in proportion to the increase of members of the profession in this State. This is partially accounted for by the fact that physicians doing contract practice are not sought as members, and partially by the lack of earnest effort to secure new members on the part of the County Secretary and the Councilor. We are probably agreed that organization is of the greatest importance for the welfare of both the profession and the public. Let us renew our efforts during the coming year to secure as members all eligible practitioners in our respective counties.

The Chairman wishes to thank the Councilors for their generous coöperation and courtesy on all occasions throughout the year.

Respectfully submitted,

OLIVER C. SMITH,
Chairman.

(4) Reports of the Councilors from the different counties in the State:

REPORT OF THE COUNCILORS.

(a) Hartford County, by Dr. Oliver C. Smith:

Mr. President and Gentlemen of the House of Delegates:

The Hartford County Medical Association presents the same number of members as in 1911, namely, 223. Six members have been admitted, three have removed, one has been dropped, and two have died. Dr. Edward A. Hotchkiss of Hartford died of typhoid fever at the Hartford Hospital, July 2, 1911. Dr. Hotchkiss' obituary will appear in the proceedings. Although he had practiced in Hartford less than two years, his ability, his sagacious judgment, and his sterling character were thoroughly appreciated. His death was a sad blow to his friends and to the profession of his County and State.

Dr. Rollin B. Chatfield of Granby died there of Bright's disease in 1911. He was a graduate of Yale in 1893, and

practiced in Granby up to the time of his death. Dr. Chatfield was a conscientious, hard-working practitioner, and had developed a good practice.

Both the fall and spring meetings have been well attended. The scientific programme has compared favorably with those of past years. A clinical hour has been a prominent feature of each meeting. Ten minutes talk on the patients presented or cases related by a number of men interests a larger number in an active way, and besides being instructive, it aids in securing a larger attendance.

At the fall meeting a committee, consisting of Dr. E. J. McKnight, Dr. P. H. Ingalls and Dr. E. P. Swasey, was appointed to consider the evil of "fee-splitting." This committee reported at the April meeting, and suggested a resolution to be brought before the House of Delegates, making the offense punishable by expulsion.

The medical institutions in the County have prospered during the past year. Both the Hartford and St. Francis Hospitals have had their largest census, the former reaching at times to 400 patients. The two tuberculosis sanatoria, Wildwood and the State institution at Cedar Mountain, have been well patronized, and are doing good work.

The addition of a fireproof stack room to the Hunt Memorial Building has been planned and funds provided for its erection. Work upon it is now under way. The new building will have a capacity of 65,000 volumes. It will eventually contain three tiers of stacks, besides providing another reading room. A permanent librarian has been employed, and cataloguing is in progress. The members of the Hartford Medical Society feel that the addition of such a library will be of inestimable value to the profession in Hartford County.

The Councilor is glad to report that the amount of back dues reported last year has been reduced by more than half, and the Secretary is sanguine of a further reduction in the near future. It is unfortunate that some members seem to fail to appreciate the advantages which the Society affords. The Council feels that it is the duty of each member to do all in his power

to foster a feeling of mutual interest and good fellowship, and when interest is found lagging, to endeavor to stimulate it afresh, as in this way only can our membership be kept intact.

Respectfully submitted,

OLIVER C. SMITH.

(b) New Haven County, by Dr. William H. Carmalt:

Mr. President and Gentlemen of the House of Delegates:

The New Haven County Medical Association begs to report a mixed infection of prosperity and decadence! Sufficient of the former to permit to it another member in the House of Delegates: though on the other hand the arrearages for non-payment of dues is considerably larger than last year. While it is true the figures of the County Clerk do not show the required fraction in numbers for the additional delegate to be excessive, still, like Mercutio's wound, while "not so deep as a well, nor so wide as a church door, 'tis enough, 'twill serve." The exact figures for each, the increased membership and the increased arrearages, are given in the Clerk's report, and I will not anticipate.

The County meetings were both well attended, the last one in April being the largest in the history of the Association, over one hundred members being present. At the October meeting, held in Waterbury, the Association again enjoyed the hospitality of the Home Club at the Hotel Elton. Five members were elected. Papers were read by Dr. C. H. Brown of Waterbury, on "Diseases of the Rectum"; by Dr. George Blumer, on "Clinical Manifestations of Bone Metastases Secondary to Malignant Neoplasms"; by invitation, by Dr. Jno. F. Erdman of New York, on "Diverticulitis of the Large Intestine"; and by Dr. H. M. Steele, on "The Value of Repeated Examination of the Urine in the Diagnosis and Treatment of Pyelitis. These were all discussed by interested members.

At the annual meeting, in April, two new members were elected and papers were read as follows, viz.: by Dr. H. G.

Anderson, on "Medical Expert Testimony," the interest in which was enhanced by the discussion being opened by Hon. L. F. Burpee of Waterbury, Judge of the Superior Court of this County. Judge Burpee's remarks from the legal side of the question were listened to with great interest and at the end he expressed the hope that relief might be obtained from the present unsatisfactory condition by a conference between a proper committee of our State Society and the Bar Association of the State in preparing a bill to present at the next meeting of the General Assembly.

Acting on this hint, a motion was passed that the member of the Committee on Public Policy and Legislation from this county be instructed to bring this matter to the attention of that committee and urge the conference suggested.

The paper by Dr. Anderson was followed by one from Dr. Stephen J. Maher of the State Anti-Tuberculosis Commission entitled, "Connecticut, a Doctor of Consumption," describing the work of that commission and urging upon physicians to visit the various state sanatoria and study their workings.

Dr. William H. Park, director of the department of Bacteriology of the New York City Board of Health, and Professor of Bacteriology and Hygiene in the University and Bellevue Hospital Medical College, then read a paper on the "Methods of Administration and Dosage of Immune Sera," illustrated by diagrams and charts, and pointed out the necessity of following *exactly* the rules laid down for their administration.

There have been three deaths of members of the Association, Drs. A. E. Winchell and Norton R. Hotchkiss of New Haven, and Dr. G. H. Beebe of Guilford. Dr. Winchell was the oldest member of the profession in the county. Dr. Hotchkiss' last illness presented features of such an unusual character that I take the liberty of mentioning the main points, for which I am indebted to Dr. O. T. Osborne; the diagnosis of spleno-medullary leukemia was first made in December, 1909, when, after several months of losing weight, he was found to have a leucocyte count of 230,000 and a high percentage of myelocytes. The usual forms of treatment being tried without benefit, he tried, under Dr.

Beebe's care, the injection of "substances" containing considerable thyroid, equally with no good effect. He was then given X-ray treatment over the spleen and long bones by Dr. Pancoast of Philadelphia. Under this he improved sufficiently to go to work again. He lived until January of this year; the treatment undoubtedly prolonged his life at least a year, enabling him to do a great deal of good work; indeed he did a successful appendicitis operation a few days before his death, which was due directly to nephritis.

The death of one formerly actively connected with the Society deserves mention. Dr. Francis Bacon, once President, resigned a couple of years before his death. During the period of his activity Dr. Bacon was a power in the counsels of the Society; he was much sought for as an expert in medico-legal cases and at one time previous to the days of anti and asepsis he did a great deal of good abdominal surgery. He died of angina-pectoris after a period of some weeks of severe suffering.

New Haven County has five public general hospitals besides the Almshouse hospital at Springside and the anti-tuberculosis sanatoria to be referred to later. The profession of the city of New Haven is still struggling, as it has been for the last twenty-five years, with the problem of an isolation hospital. It was thought when the city finally voted to accept the proposition of the New Haven Hospital to place such a building on its premises and the legislature gave permission to the city to issue bonds to the amount of \$75,000 for the building and equipment that the millennium was about reached, but alas! the joint building committee of the city and hospital finds the building they want will cost more, and the work is still held up. Besides this building, the Hospital Directors have approved plans for various other improvements; new service and administration buildings, a private room ward and a children's ward have been approved, and the architects are working on the plans.

The General Hospital Society of Connecticut, of which the New Haven Hospital is at present the outward and visible sign, has within a couple of years received a very large sum for the specific purpose of fighting tuberculosis. The Directors are given

a free hand as to how this shall be best done, and after wide and mature investigation, involving correspondence with those engaged in this work throughout the country, it was found that the decided consensus of opinion was that the care of advanced cases was the most important thing to be done. These are the greatest menace and burden the community by first infecting their immediate families, then their apartments to the exposure of those who may afterwards occupy them, and, thirdly, by requiring the care of those who would otherwise be wage-earners. In these ways they become a force from which all the evils spread, with which we as physicians are so sadly familiar. The Directors therefore purchased between forty and fifty acres of land in the vicinity of New Haven, with easy access by trolley cars, very desirably situated on high ground, with an extensive and pleasant outlook, having both grove and open fields, and are now having plans made for suitable buildings for the care of 100 patients in the advanced stages of the disease. There is also plenty of grounds for the treatment of those not so far advanced, requiring simply open-air treatment and proper food, with possibly further accommodations for day workers, i. e., those who, while earning wages, may have salubrious open air to sleep in. It is hoped that the near future will show an increased usefulness in this, the oldest hospital in the state.

Your reporter wishes to refer also to the State Anti-Tuberculosis Sanatorium of Undercliff, near Meriden, where about 100 patients, in all stages of the disease, are cared for. This is doing good work; it is admirably located, protected from the north and west winds by the great cliff of the hanging hills of Meriden, with a beautiful and extended view to the south and east and west. It is still new and needs a lot of grading, and some very necessary buildings are still wanting to properly isolate the various grades of the disease. Some of these are being built, but others must wait for further appropriations from the State. With the completion of these improvements, the building of the Memorial adjunct to the New Haven Hospital above mentioned, and the admirable plant of the Gaylord Farm Sanatorium near Wallingford, it would seem that New Haven County is to be

fairly well equipped to wage efficient warfare against the great white plague.

It must be of interest to the profession of the State to know that steps are in progress leading towards a more intimate connection between the New Haven Hospital and the Yale Medical School, as was contemplated when the Hospital was founded. The negotiations have now reached a stage when the University must make the deciding move and determine if it intends to give the Medical School the facilities it must have to take rank among the first-class schools of the country.

Respectfully submitted,

WILLIAM H. CARMALT.

(c) New London County, by Dr. Patrick J. Cassidy:

Mr. President and Gentlemen of the House of Delegates:

New London County, although for some time quiet medically, partially on account of geographical situation, and partly owing to lack of interest on the part of the members of the County Society, has had a rather active medical year. County meetings have been well attended, with very interesting papers and discussions, an especially interesting paper being one upon the subject of the relation, ethically, of the consultant to the family practitioner, at our fall meeting, read by Dr. Brayton. From the point of view of membership in the County Society, there has been no great change. We have lost by the death of Doctor Patrick H. Harriman a member of this Association who was personally extremely popular. There have come into the County during the past year six regular practitioners, all of whom expect to become members of this, our State Association.

The general standard of professional ethics in New London County has been raised. Without any question I may state that although there has been an increase in number by two of the fraternal benefit orders, the provisions against contract practice in our by-laws are lived up to.

In the City of Norwich, the local Medical Society has become an organization which includes amongst its members all reputable practitioners of medicine, irrespective of school. The William W. Backus Hospital has thrown open its private wards to the use of all reputable medical practitioners irrespective of school. Therefore, we point with pride to these evidences of progressiveness.

The last Legislature voted an appropriation of \$65,000 for the establishment of a Tuberculosis County Home in New London County. This home is now in the process of construction upon a site selected by the Commissioners, although there was, temporarily, most uncharitable opposition to this site on the part of a very small coterie of residents in Norwich, which opposition was due, in great part, to lack of knowledge of tuberculosis on the part of the public. This ignorance the New London County Medical Association is endeavoring to overcome by means of frequent talks of tuberculosis before the business associations and workingmen's clubs, and by an intended tuberculosis exhibit, which will be held under the auspices and control of a committee from the Society.

New London County has had added to its medical and surgical facilities the magnificent new Lawrence Free Hospital, which is the gift by devise of the late Sebastian Lawrence.

With the industrial awakenments in New London County, such as the removal to Norwich of the American Thermos Bottle Company's plant, and the fact that in the near future there will be begun the expenditure of the million dollars appropriated by the last Legislature for improvements in New London Harbor, New London County may well be said to be awakening from a deep sleep, awakening not only industrially, but also, as is evidenced by increased interest of our part of the State in the meetings of the State Society, awakening medically.

Respectfully submitted,

PATRICK J. CASSIDY.

(d) Fairfield County, by Dr. Samuel M. Garlick:

Mr. President and Gentlemen of the House of Delegates:

During the year just now closing Fairfield County has not made large demands upon the Councilor. Peace has reigned within our borders, and the messages which have come have been records of harmonious prosperity and exalted purpose.

The hospitals are industriously thriving, increasing in number, in size, equipment and enlarged service to the community; they are also continuous educators for both physician and layman.

Some statements indicate that we have not yet found the best or most satisfactory relation of the hospital and its staff to the general practitioner and his patients. In service we may not be doing much in the line of brilliant research work, but our members are enthusiastically making practical application of the best suggestions and methods of advanced thinkers.

Our local societies are enthusiastic and progressive. In our County Society the scientific work was never better done nor more careful preparation made for it. The officers have been unsparing in their personal efforts to "cultivate sociability and friendliness among the members" and to "increase their knowledge of scientific and practical medicine," consequently the marked interest in our County Association has never shown to better purpose. It still remains true that both profit and pleasure would be increased by a larger and more numerous interchange of delegates and visiting members. There are yet too many non-affiliated practitioners. A careful enquiry by our enthusiastic secretary discovers a total of 159, including those not yet sufficiently long resident, and also those non-eligible.

Contract practice is still continued by a limited number of our members. Frowned upon, discredited and discarded by a large majority, believed in by none, there are still by far too many who either cannot or will not give it up. Of direct "fee splitting" no case has come to the writer's knowledge.

At my last report we numbered 166 members; sixteen have been added and three have been lost by death, leaving us now an active membership of 179.

It is my painful duty to report the loss by death of three of the 'leal and true': Dr. Frederick B. Baker, of East Norwalk, Dr. Joseph L. Hetzel, of Southport, and Dr. Seth Hill of Stepney, one of the oldest members and an honored ex-President of the State Society. Of these, and of their life work in our profession, the Necrologist will write more fully; their true memorial, however, will be unwritten but lovingly recorded in the hearts of those for whom they gave unstintedly of their tender sympathy and greatest skill. In my judgment it would be a great misfortune to omit from the printed records of this Society, as has been suggested, the memorials of our deceased associates. If the time shall ever come that we begrudgingly give only a stinted honor to our dead, the time will then also have come when scant honor will be shown to the living and commercialism will be supreme.

All things considered, I think I may say without contradiction that Fairfield County Association was never in a more healthful condition than at present.

Respectfully submitted,

SAMUEL M. GARLICK, M.D.,
Councilor.

(e) Windham County, by Dr. George M. Burroughs:

Mr. President and Gentlemen of the House of Delegates:

I am pleased to report a continuance of prosperity and of harmony among the members in Windham County.

The Windham County Medical Association has held two meetings during the past year. The semi-annual meeting was held in Danielson, October 19, 1911. At this meeting Dr. J. H. Townsend, Secretary of the State Board of Health, was present and read a paper on "The Public Milk Supply of Connecticut."

The annual meeting was held in Willimantic, April 18, 1912. At this meeting we had as our guests Dr. John G. Stanton, President of the State Society, and Dr. Joseph A. Cooke, delegate from New Haven County Medical Association, each of whom addressed the meeting.

The members voted at the annual meeting to extend to the Connecticut State Medical Society an invitation to meet with us at our semi-annual meeting, which will be held in Willimantic in October, 1912.

In looking over the programme of our annual meeting, several thoughts present themselves. First, in regard to the presence of the President of the State Society at the meetings of the county associations. There can be no doubt as to the benefit to be derived from this practice. It encourages and helps the county associations and helps the State Society. It should be the duty, as well as the pleasure, of each succeeding president of the Connecticut State Medical Society to attend the annual and the semi-annual meetings of each of the county associations in the State.

It is also very desirable that each of the seven delegates who are elected by each county association, one for each of the other counties, should attend either the annual or the semi-annual meeting of the county association to which he is a delegate. Much good can be accomplished in this way. These visits would bind the county associations more closely together, promote harmony and tend toward unity in the medical ranks in the State. This is a subject that has been mentioned each year and will bear repetition. During the past year only one of our delegates attended a meeting in the county to which he was a delegate and only one delegate from another county attended either of our meetings. Each delegate is an officer of his association and he has a duty to perform and he should feel that it is a duty he owes to his county association, to the association to which he is a delegate and to the State Society. The members of Windham County Medical Association are always pleased to receive and entertain delegates from the other counties, and I can say from personal experience that the reception given the delegate from Windham County by the other county associations has been most cordial.

All of the papers that have been presented at the meetings of our association during the past year have been practical and instructive and have shown painstaking care in their preparation, but there is, perhaps, a tendency to crowd too many papers into the programme, making it necessary to restrict or eliminate free

discussion of each paper and perhaps be compelled, through lack of time, to omit the reading of one or more of the papers.

It is with regret that I have to report the death of one of the older members of our Association, Dr. O. E. Darling of Killingly, who died July 26, 1911, after a long illness, from cancer of the stomach. Dr. Darling was born in Killingly. He had been in practice in Killingly thirty-nine years. He was a conscientious worker, prominent in the affairs of the town, the schools and the church, and is missed by a very large circle of patients and friends.

One new member was elected at our annual meeting and one member has been dropped from the roll, which, with the death of one member, gives us a loss in membership of one. The attendance at our meetings compares favorably with that of previous years.

St. Joseph's Hospital in Willimantic and Day-Kimball Hospital in Putnam are each doing an increased amount of good work, especially in surgery and obstetrics.

Nothing has transpired which has called for official action of the Councilor during the past year.

Respectfully submitted,

GEO. M. BURROUGHS.

(f) Litchfield County, by Dr. Elias Pratt:

Mr. President and Gentlemen of the House of Delegates:

The past year has been one of harmony and good feeling among the members of the Litchfield County Medical Society. Our autumn meeting was held in Canaan on October 3, 1911, the State Society meeting with us. Unfortunately, I was away from home and could not attend. Those present report a very successful and helpful meeting. The subject of a campaign of education on medical subjects through the press was discussed, and it was the consensus of opinion that much good might be accomplished by such work.

We had a serious epidemic of typhoid fever in Torrington during September and October, a full report of which is being prepared by the Secretary of the State Board of Health.

The County Society has lost two of its members by death during the year.

Thatcher S. Hanchett was born in Canaan, Conn., November 8, 1838, graduated at the Bellevue Medical College in 1864, and for forty-five years did a general practice in Torrington. Before entering upon a private practice, he "rode" with Dr. William Welch of Norfolk for a year. He was one of the last links that bind us to a former generation. He was a man of sterling character, bursting with energy and very much in love with his work. In his death the whole community met with a great loss.

Edwin H. Welch was born in Winsted, March 15, 1852. He graduated at Yale Medical School in 1876; practiced with his father, Dr. James Welch, until his father's death in 1886. Since then he has carried on a large practice. His was a genial temperament and his friends were legion. In its best sense he was the family doctor. He was a faithful attendant at the Society meetings, and was elected President of the State Society, which office he was not able to accept owing to failing health.

Respectfully submitted,

ELIAS PRATT.

(g) Middlesex County, by Dr. George N. Lawson:

Mr. President and Gentlemen of the House of Delegates:

As Councilor from Middlesex County, to fill the unexpired term of Dr. James M. Keniston, who was forced by the pressure of work to give up the position, I can report that the past year has been a prosperous one, that the meetings of the County Association and those of the Central Medical Society have been very profitable ones, and in the class of papers read have shown a progressive scientific spirit.

The Middlesex Hospital is doing excellent work, most of the surgery being now done by the local men. During the last year a contagious pavilion was completed, the gift of W. H. Burrows of Middletown. An excellent X-ray machine has been given, and the Hospital Aid Society has presented the equipment for a modern laundry.

Last fall, at the suggestion of Mr. Wheatley, the superintendent of schools in Middletown, it was decided in the Central Medical Society to furnish free medical inspection of the schools for the year, one physician taking up the duties for a month. Mr. Wheatley reports that the results for the year have been very valuable both in their direct benefit to the pupils and also in interesting the physicians in school work.

I wish to acknowledge the debt of gratitude the physicians of the County owe to Dr. Jessie Fisher and her associates in the laboratory at the Asylum for their kindly aid and expert services in the examination of pathological specimens.

Although the State Board of Directors, to establish county homes for persons suffering from tuberculosis, has had the matter of establishing a tuberculosis sanatorium in Middlesex County under consideration for more than half a year, they have not yet commenced to build such a sanatorium, as was voted by the last Legislature, or, as far as I can learn, even decided on a site. This delay seems to the physicians of the County inexcusable. In view of these facts, the Middlesex Anti-Tuberculosis Society has decided to reopen its summer camp in Cromwell for the season or as long as the funds available will permit. This society has done valuable work not only in conducting its summer camp for the treatment of incipient cases but more especially by its educational work.

In regard to contract practice, we have deemed it wise to take active measures, and I append a medical covenant, handed me by my predecessor, Dr. Keniston, which we are making the basis of vigorous endeavors to eradicate the last vestige of this evil from our county.

A MEDICAL COVENANT.

At a general meeting of physicians of Middletown and vicinity, held under the auspices of the Central Medical Association, at Hotel Chaffee, November 13, 1911, the following covenant was unanimously adopted and signed:

We, the undersigned, members of the medical profession in Middletown and vicinity, do hereby agree and promise to enter into no relation with any individual or individuals, society, business concern, or any other kind of organization under conditions, expressed or implied, whereby our services are paid for at a rate which is equivalent to a "cut price," as far as our brother practitioners are concerned. In other words, however the terms may be defined, we agree and promise to abstain from all forms of unjustifiable contract practice, fee-splitting, and any of the secret commission evils or other objectionable practices which we know to be contrary to the honored traditions and higher ideals of our profession and against the best interests of the people whom we serve.

We, therefore, do hereby publish and declare our intentions to use all just and proper means to protect ourselves from infringement of the right to establish and maintain the standard of medical ethics which shall govern professional services in this community. To this end, standing solidly together as a united body of professional men, we propose to discourage the employment of the objectionable practices referred to, either by individuals or collectively by organizations. Accordingly, as our first and manifest duty, we hereby subscribe our names in this solemn pledge not to consult with, nor aid, nor abet, directly or indirectly, any physician now in practice or hereafter becoming resident in this community, who shall conduct his professional work contrary to the letter and spirit of this covenant. This pledge, however, shall not apply or become operative in cases of accident when the refusal of prompt assistance would endanger life.

In order to work no injustice, it is agreed that every practitioner shall be invited to sign this document or one of like import. If he does not, and he, or any other physician in our midst, is accused of violating this covenant, he shall be informed of the charge against him by a duly appointed committee of five. Should the accused be unable to convince the committee that the charge is groundless, the committee shall so report and at a duly called meeting of the signers of this covenant the accused shall be given an opportunity to be heard in his own defense. Failing to appear or to successfully controvert the accusation, upon a two-thirds vote of those present, a majority of the signers of this covenant voting, the physician in question shall be notified that his brother practitioners have severed their professional relations with him.

Later, in March, 1912, the following rules were adopted in regard to a Board of Censors:

THE BOARD OF CENSORS OF THE AFFILIATED PHYSICIANS OF MIDDLETOWN
AND VICINITY.

Section 1. The Board of Censors of the Affiliated Physicians of Middletown and vicinity shall consist of five members, one of whom shall be the Councilor of the Middlesex County Medical Association. They shall be elected by ballot and by a majority of the votes cast and shall serve for one year or until others are chosen in their place.

Sec. 2. Any vacancy in the Board due to death, resignation, removal, or inability to serve owing to sickness or absence, may be filled at any regular meeting of the Affiliated Physicians by ballot and by a majority of votes cast; the member so elected shall serve for the unexpired term of the one whom he succeeds.

Sec. 3. It shall be the duty of the Censors to invite every legally qualified practitioner of medicine within the jurisdiction of the Affiliated Physicians to sign the Medical Covenant adopted by them November 13th, 1911.

Sec. 4. The failure to sign this covenant, as well as every instance of its violation by any physician who has already signed it, shall be reported by the Censors to a general meeting of the Affiliated Physicians for such action as may be deemed best.

Sec. 5. It shall be the further duty of the Censors to investigate as far as possible all other cases which may be brought to their notice of delinquencies or irregularities in practice or deportment occurring among or in connection with any member of the medical profession in Middletown and vicinity and report their findings to a general meeting of the Affiliated Physicians for such action as may be deemed best.

(Signed by: John E. Bailey, Leonard Bailey, Louis R. Brown, Charles E. Bush, J. Francis Calef, Arthur J. Campbell, Charles B. Chedel, Arthur B. Colburn, Jessie W. Fisher, W. E. Fisher, D. L. Glynn, Frank K. Hallock, S. Mary Ives, James M. Keniston, James H. Kingman, John E. Loveland, Sidney A. Lord, E. J. Lynch, Joseph H. McDougall, Charles A. McKendree, D. L. Maitland, Kate Campbell Mead, James T. Mitchell, John H. Mountain, James Murphy, Henry S. Noble, D. A. Nolan, Frank E. Potter, G. G. Petrocelli, Hamilton Rinde, Frederick H. Sage, Cushman A. Sears, Charles E. Stanley, Albert C. Thomas, Thomas P. Walsh, Charles B. Young.)

Respectfully submitted,

GEO. N. LAWSON.

(h) Tolland County, by Dr. Thomas F. Rockwell:

Mr. President and Gentlemen of the House of Delegates:

It is a pleasure to report that nothing has occurred during the past year to mar the pleasant social and professional relations of the members of the Tolland County Association. There has been no loss by removal or death to record during the year.

The Association has now an active membership of twenty—a gain of one since my last report. Dr. Donald L. Ross of Mansfield, superintendent of the Connecticut Colony for Epileptics, was admitted to membership at our last annual meeting. The Association accepted a very cordial invitation from the Board of Trustees of the Connecticut Colony for Epileptics to hold its semi-annual meeting at that institution at Mansfield Depot, Conn., Tuesday, October 17, 1911. The meeting was well attended, and all present were delightfully entertained by Superintendent Dr. D. L. Ross, and Dr. W. L. Higgins, Secretary of the Board.

Dr. Louis R. Brown, assistant physician at the Connecticut Hospital for the Insane at Middletown, Conn., read a paper on the "Diagnosis of Mental Diseases," which was very instructive to the general practitioner. Other papers of the meeting were: "Diet," by Dr. James Stretch; "Practical Points in Anesthesia," by Dr. William N. Simmons; "Providing for and Treatment of Epileptics," by Dr. Donald L. Ross. These were all interesting and profitable.

The one hundred and twentieth annual meeting of the Association was held at Rockville Tuesday, April 16, 1912. We were glad to welcome Dr. E. S. Moulton, delegate from New Haven County. He gave us a brief talk on the fraternal relations of the profession in the various counties. Other papers were: "Dental Pathology and Therapeutics," by Dr. Martin B. Metcalf; "Some Diseases of Children," by Dr. Wright B. Bean; "Some Sanitary Problems," by Dr. Charles P. Botsford, Superintendent of the Hartford City Board of Health. The papers were all good, and practical.

The Secretary reports all taxes due have been paid.

The Cyril and Julia C. Johnson Memorial Hospital at Stafford was dedicated February 29, 1912, and given by Mr. Johnson to

the town of Stafford. The total cost of the building, including the equipment, is about \$75,000 and in addition to this, Mr. and Mrs. Johnson gave it an endowment of \$200,000, and now Stafford has one of the best equipped hospitals in the State, and the only one in Tolland County.

Respectfully submitted,

THOS. F. ROCKWELL.

(5) Report of the Treasurer, Dr. Joseph H. Townsend (New Haven), to the Connecticut State Medical Society, for the year ending May 22, 1912:

REPORT OF THE TREASURER.

RECEIPTS.

Balance from old account,	\$692.65
Cash from County Clerks:	
Hartford County,	\$886.50
New Haven County,	743.40
New London County,	186.45
Fairfield County,	514.80
Windham County,	112.00
Litchfield County,	168.30
Middlesex County,	158.40
Tolland County,	61.60
	<hr/>
Total receipts from taxes,	2,831.45
	<hr/>
	\$3,524.10

DISBURSEMENTS.

Dr. C. C. Beach, anniversary chairman, . . \$	58.85
Hartford Medical Society,	10.00
Stenographer,	108.86
Dr. E. J. McKnight, chairman Legislative Committee,	33.81
Hugh M. Alcorn, Attorney,	250.00
<i>Yale Medical Journal</i> , balance due for publishing Proceedings of 1910,	988.40

<i>Yale Medical Journal</i> for publishing Pro- ceedings of 1911, pd. on account, . . .	\$1,000.00	
Distributing Proceedings in Hartford and Bridgeport,	10.06	
Expenses of delegates, Dr. E. J. McKnight and Dr. D. C. Brown, to meeting of the A. M. A.,	344.12	
Printing, stationery, etc.,	88.90	
Salary of Secretary,	150.00	
Expenses of Secretary, postage, traveling, etc.,	11.90	
Salary of Treasurer,	25.00	
Safe Deposit Box and Treasurer's bond, . .	10.00	
Expenses of semi-annual meeting, . . .	28.75	
	<hr/>	\$3,118.65
Cash to balance,		405.45
		<hr/>
		\$3,524.10

ARREARS IN TAXES LAID, 1911 AND 1910.

	1911	1910
Hartford County,	\$ 40.00	\$ 64.00
New Haven County,	332.00	36.00
New London County,	24.00	12.00
Fairfield County,	185.00	55.00
Windham County,	24.00	none
Litchfield County,	45.00	8.00
Middlesex County,	none	none
Tolland County,	none	none
	<hr/>	<hr/>
	\$650.00	\$175.00

DR. GURDON W. RUSSELL FUND.

RECEIPTS.

Amount of fund, May 24, 1911,	\$7,036.56
Interest to Oct. 31, 1911,	70.83
7 Coupons of January 1, 1912,	152.50
	<hr/>
	\$7,259.89

DISBURSEMENTS.

1911.

Oct. 31, \$5,000 Conn. Ry. & Lighting Co.'s	
4½ % Bonds at 102.00,	\$5,100.00
Accrued interest, 4 months,	75.00
\$2,000 Consolidated Ry. Co.'s 4's at 92¾,	1,855.00
Accrued interest, 4 months,	26.67
	<hr/>
	\$7,056.67
Balance on deposit in Conn. Savings Bank,	203.22
	<hr/>
	\$7,259.89

The Fund is therefore invested as follows:

	Par Value.
5 Conn. Ry. & Lighting Co. bonds,	\$5,000.00
2 Consolidated R. R. bonds,	2,000.00
Deposit Conn. Savings Bank,	203.22
	<hr/>
	\$7,203.22

Respectfully submitted,

JOSEPH H. TOWNSEND,
Treasurer.

This is to certify that we have this day examined the accounts and vouchers of the Treasurer and find the same correct, and the securities as listed above to be in his possession.

W. H. CARMALT,
SAMUEL M. GARLICK,
Auditors.

New Haven, Conn., May 22, 1912.

DR. WILLIAM H. CARMALT (New Haven): As Chairman of the Auditing Committee we report that the Treasurer has completed his Report; and we find that the vouchers are all present and properly certified to. The Report has been signed by the Auditing Committee, Dr. Garlick and myself.

As a member of the Auditing Committee, I wish to express my appreciation of the amount of work that the Treasurer has to do, and of the difficulties that he has to stand up against, caused by the lapses of the County Clerks. They send him their reports in the most extraordinary way. The figures do not agree, and he has all sorts of difficulty in getting them straightened out. I shall not mention any names, but here is a county with fifty-four members. The amount should be \$216, if I am not incorrect. Now the Clerk says, "Amount collected \$180; amount in arrears, \$7," and then adds that up, and makes \$187. Then he puts the amount of arrears in taxes as \$60, and foots up \$36. If the Treasurer of the State Society has a little difficulty in making these things meet, it is not his fault, but the fault of the County Clerk in not filling up the blanks properly. They are perfectly plain, and a child in the second grade should be able to fill them up.

DR. WILLIAM H. DONALDSON (Fairfield): May I take up a moment before the next report is read? The two following reports, that are now to come, seem to me so important and interesting to every member of the Society that I think it is too bad that they should be lost on such a small gathering as this; although it makes up in quality what it lacks in numbers. Nevertheless, I wish that the report could be made before a larger audience. The programme of the afternoon is already made up, and this is perhaps just as well; but it seems to me that these reports ought to be brought in during the afternoon before a larger body of the Society. I make that remark before the reports are offered, in the hope that someone else may make a practical suggestion by which this could be done.

DR. SAMUEL M. GARLICK (Bridgeport): I think that a good time would be at the close of the President's Address to-morrow, which is the time at which we usually have the largest audience.

DR. EVERETT J. MCKNIGHT (Hartford): I really believe that they had better take the usual order.

THE PRESIDENT: As President, I think we had better follow the usual custom.

(6) Report of the Committee on Public Policy and Legislation, by Dr. Everett J. McKnight (Hartford) :

REPORT OF THE COMMITTEE ON PUBLIC POLICY AND LEGISLATION.

Mr. President and Gentlemen of the House of Delegates:

Nearly all of the important measures of interest to the medical profession which were before the last session of the Connecticut Legislature had been acted upon before the 1911 meeting of this Society and were fully reported at that time.

Later in the session bills were passed authorizing the State Board of Health to provide the County Health Officers with diphtheria and tetanus antitoxins for the free use of the people of the State; providing for a fine of not less than \$100 nor more than \$500 for using arsenic for embalming; giving the State Board of Health power to establish regulations in regard to the use of common drinking cups; requiring that individual towels be furnished in hotels and public lavatories; requiring tenement, lodging and boarding houses to be kept in repair, kept clean, not to be overcrowded, to have sufficient water-supply and an ample number of water closets or privy vaults and ample ventilation and providing a fine of not more than \$200 or imprisonment not more than sixty days or both for violation in these matters, and requiring that occupational diseases be reported by the attending physician. A resolution allowing Stephen B. Sweet to practice bone setting in this State, which at the time of our last meeting had been passed by the House in the form of an amendment to the Medical Practice Act exempting bone setters from the provision of that Act, was later defeated in the Senate and failed of passage.

On the whole the results were eminently satisfactory and your chairman desires to express his sincere thanks to those members of the Society who so ably responded to his requests for assistance, thereby enabling us to secure the passage of practically every desirable measure and the defeat of everything which was objectionable.

It is to be regretted that we were unable to secure the coöperation of the Legislative Committee of the Homœopathic Medical Society in an endeavor to secure one Examining Board. The time has come when it seems an absolute necessity that this be accomplished.

Respectfully submitted,

EVERETT J. MCKNIGHT.

(7) Report of the Committee on Medical Examinations and Medical Education, by Dr. J. Francis Calef (Middletown):

REPORT OF THE COMMITTEE ON MEDICAL EXAMINATIONS AND MEDICAL EDUCATION.

Mr. President and Gentlemen of the House of Delegates:

Your Committee on Medical Examinations and Medical Education presents herewith its nineteenth annual report.

There have been examined during this year 93 candidates for certificates of qualification in General Practice, of whom 65, or 69.9 per cent., have been found qualified, and 28, or 30.1 per cent., have failed. This is the largest percentage of failures ever recorded in this state and is somewhat above the average for the entire United States. This large percentage of failures has been due in part to the always advancing requirements and in part due to the fact that a larger number than usual this year have attempted the examinations two or even three times.

There have also been examined 20 in Midwifery, of whom 13 were found competent. The Board has twice in the past year felt constrained to refuse examination to *men* who applied for certificates in Midwifery. For men to apply for such certificates is a unique and rather ludicrous anomaly—evidently an attempt to circumvent the law.

The Committee has held six meetings during the past year and conducted three examinations, each extending throughout two days. Because of the increased length of time needed for carrying on the practical examination it may be necessary in the near future, if this part of the work is to be developed, to

extend the examinations over three days. Although this practical work has been found a most satisfactory adjunct to the written examinations, the Board hesitates to do this because of the increased time, expense and inconvenience to the candidate.

The new educational requirement which goes into effect January 1, 1914, demanding an extra year or its equivalent of preliminary training, has made it necessary for your Committee to formulate a standard by which the credentials presented by prospective medical students as well as by graduates may be evaluated. This has entailed a careful study of the whole situation, involving much correspondence with Secondary Schools and College Freshman Committees. The result, however, is now ready for announcement.

There has also been made upon the Board a request for our interpretation of what in our law is termed a "reputable Medical College." This also has been thoroughly thrashed out and standards and requirements for medical schools which will admit to recognition by the Connecticut Board have been prescribed. These, with those upon preliminary education, we hope to have in your hands at an early date in the form of a more detailed report of the work of your Committee.

The Connecticut State Board has become affiliated with the National Confederation and is taking an active part in its deliberations. Common standards for all states, both of preliminary and medical requirements, are being worked out for the entire country and it is hoped that a common law under which all State Boards may work will be the outcome. By this means it is fair to expect that some equitable plan of interstate endorsement of certificates may be presented or a Federal Examining Board be organized.

Enclosed herewith is a copy of the rules under which the Board is now working, a set of questions used at the last examination, and a list of successful candidates of the year.

Respectfully submitted,

CHARLES A. TUTTLE,
Secretary.

RULES FOR EXAMINATION.

1. Examinations will be held on the second Tuesday of March, July and November, at the City Hall, New Haven, beginning at 9.30 A. M., and lasting two days, closing at 4.30 P. M. of the second day.

2. Examinations will be conducted in writing in the English language, but practical demonstration may be expected in any or all branches.

3. Examinations for general practice consist of ten questions in each of the following subjects: 1 Anatomy. 2 Physiology. 3 Surgery. 4 Obstetrics, including Gynæcology. 5 Materia Medica, including Therapeutics. 6 Medical Chemistry and Hygiene. 7 Practice, including Pathology and Diagnosis. Questions in the specialties under respective headings.

4. In order to obtain a certificate of qualification the applicant must obtain a general average of 75 per cent. In no branch shall his percentage be less than 60, and in Practice, Obstetrics and Surgery the minimum requirement will be 65 per cent.

5. Examination fee, \$15.00, payable in advance on the first day of examination. Candidates once rejected may be reexamined at any subsequent meeting of the Board but must pay full fee for each trial.

6. All candidates must be graduates from some reputable Medical College and must present their diplomas (or a certificate from the Dean of the Medical College) for inspection, to the Secretary of the Board, at the opening of the session. As evidence of the required preliminary education, he must also present a diploma from an accepted high or preparatory school or documentary proof that his preliminary education is equivalent thereto. From and after January 1, 1914, no person can be admitted to the examination until, in addition to and succeeding the foregoing preliminary education, he shall have completed also satisfactory major courses of study of at least nine months duration in Chemistry, Physics and General Biology before beginning the study of Medicine.

7. Each candidate must present his photograph as a means of identification. This will be retained and kept on file by the Secretary.

8. Formal application (blank enclosed) must be made to the Secretary at least five days before the date of the examination. This must be accompanied by a certificate of good moral character signed by two reputable citizens of this state.

9. Questions used at some former examinations will be found in the yearly Proceedings of the Connecticut Medical Society—the Board is unable to supply copies.

10. A license or an examination in another state is not accepted by this Board. All candidates must undergo regular examination. It is unlawful to practice in this state before examination and license. No temporary or provisional certificate can be given.

DIGESTS OF THE LAWS OF 1907.

a. No person shall, for compensation, gain or reward, received or expected, treat, operate or prescribe, for any injury, deformity, ailment or disease, actual or imaginary, of another person, nor practice midwifery, until he has obtained a certificate of registration, and then only in the kind or branch of practice stated in said certificate.

b. No person shall obtain a certificate of registration until he has passed a satisfactory examination before one of the examining boards appointed for the purpose, nor until he has filed duplicate certificates signed by a majority of said examining board, stating that they have found him qualified to practice either medicine or midwifery, nor until he has filed duplicate statements subscribed and sworn to by him upon blanks furnished, giving his name, age, place of birth and present residence, stating of what medical college he is a graduate, and the date of said graduation, together with such other information as shall be required. No person shall be eligible to said examination until he presents to the board, by whom he shall be examined, satisfactory evidence that he has received a diploma from some legally incorporated and reputable medical college and complied with the requirements of the law concerning preliminary education. Any person passing such examination and filing said certificates and statement shall receive from the State Board of Health, upon payment of

two dollars, a certificate of registration, which shall state that the person named has been found qualified so to practice. He shall be registered in the town wherein he resides or the town nearest thereto—but shall be entitled to practice anywhere in this State without further registration.

RULES FOR CONDUCTING EXAMINATIONS.

First, Help of every kind must be removed from the reach and sight of the candidate. Any candidate detected trying to give or obtain aid may be instantly dismissed from the room, and his or her paper for the entire work canceled.

Second, Questions must be given out and answers collected punctually at the time specified for that section.

Third, If the candidate withdraws himself or herself without permission from the sight of the examiner, his or her examination shall be closed.

Fourth, Pens, blotters, paper or blank books and ink will be supplied by the Secretary. No separate papers can be accepted unless thus supplied.

Fifth, The examination shall continue two days, the sessions of the first day being from nine-thirty to eleven, eleven to one, two to four, four to six, respectively; the sessions of the second day being the same, but closing at four-thirty instead of six o'clock.

EXAMINATIONS IN MIDWIFERY.

1. Examinations in Midwifery will be held on the second Tuesday of March, July and November at the same time and place as for General Practice, and under the same rules and requirements.

2. Applicants to practice Midwifery will be examined in Midwifery only and must obtain a marking of 75 per cent.

3. Examinations will be in writing; but may be taken in the language of the applicant, the applicant to furnish and pay an interpreter acceptable to the Board.

4. The examination fee will be \$10.00 and is payable at the time of taking the examination.

5. All applicants must be graduates of some reputable college or school of Midwifery and must present her diploma for inspection at the opening of the session. A photograph is also required.

EXAMINATION QUESTIONS, MARCH 12-13, 1912.

ANATOMY.

Answer ten questions only.

(*Two hours.*)

1. Give the origin and insertion of the sterno-mastoid, biceps (flexor cubiti), deltoid, trapezius, and peroneus longus muscles.

2. Describe the knee joint. Show by diagram how far up the thigh the synovial membrane extends.

3. Give relations one with another of artery, vein and nerve in: (a) Scarpa's triangle, (b) Hunter's canal, (c) Popliteal space.

4. Give origin and describe course of the deep epigastric artery.

5. Describe the formation of the rectus abdominis sheath (a) in its upper, (b) in its lower portion.

6. Show diagrammatically the tendon sheaths and the arterial arches in the palm of the hand.

7. Describe or show the relations of the lateral sinus, facial nerve, and semicircular canals in opening the tympanic cavity from behind.

8. Describe the blood supply of the uterus.

9. Describe cystic, hepatic, and common bile ducts.

10. Describe the male urethra, stating where the normal narrowings occur.

11. Describe the general anatomy of the skin.

PHYSIOLOGY.

(*Two hours.*)

1. The blood: (a) State its chemical composition; (b) what is the normal amount of blood in a man of about one hundred and sixty pounds in weight? (c) How is it renewed after

hemorrhage? (d) What chemical changes are essential to its normal coagulation? (e) Is its alkalinity increased or diminished by exercise, by lactation, or digestion, and why?

2. What is the origin and function of lymph? Is it coagulable or not and why?

3. What is absorption and by what processes is it accomplished? What conditions favor and what conditions retard absorption?

4. When and by what secretion is meat digested? Can a man live on an exclusively meat diet? Why?

5. State the average normal temperature of the body. What variations are found in the different parts of the body? Why?

6. What is the source of normal feces, and of what is it composed?

7. What tissues and organs are developed respectively from the ectoderm, mesoderm and entoderm?

8. What are the Wolffian bodies? What becomes of them?

9. What are brain membranes? What are the functions of each?

10. What is asphyxia and how does it produce death?

SURGERY.

(Two hours.)

1. (Reserve the first page for a description of the chest of a patient who will be presented for examination during the afternoon.)

2. Concussion and contusion of the brain—fully discussed and differentiated.

3. Trifacial neuralgia—fully discussed and one radical operation described.

4. Diagnosis and treatment of a rupture of the liver.

5. Give in detail your treatment of acute gonorrhœal urethritis?

6. How do you sterilize yourself and dress for an operation?

7. Describe fully an operation for amputation at the hip joint?

8. Usual location, diagnosis and treatment of tuberculosis of bone.

9. Give the pathology of dislocation at the hip joint?
10. Describe two clinical varieties of epithelioma, and give the microscopical structure which they have in common.

GYNÆCOLOGY AND OBSTETRICS.

(Two hours.)

1. Premature labor: (a) Define. (b) Give three indications for it.
2. Version: (a) Mention four indications for it. (b) Give technique of internal version.
3. Cystocele: Give (a) definition; (b) symptom; (c) technique of radical cure.
4. Hæmorrhage after labor: Mention four causes that produce it.
5. Salpingitis: Give (a) etiology; (b) symptoms; (c) treatment.
6. Pelvic complications: Give (a) four that may follow puerperal convalescence; (b) pathology of each; (c) treatment of one.
7. Liquor amnii: Give (a) function; (b) composition.
8. Face presentation: Give management.
9. Pessary: What precautions must be observed in its use?
10. Pudendal hæmorrhage: (a) Define. (b) Etiology. (c) From what must it be differentiated?

HYGIENE AND MEDICAL CHEMISTRY.

(One and one-half hours.)

1. Give the steps you would take in ascertaining the cause or causes of an epidemic of typhoid in a town.
2. How should milk be cared for from the time it leaves the cow until it is put on the table?
3. Describe the "Cameron Septic Tank" method of disposal of sewage.
4. Show by diagram and describe the plumbing system of a house.
5. How may a "water seal" be lost?

6 and 7. Discuss occupations from the hygienic standpoint, pointing out how they may affect morbidity.

8. (a) How is malarial infection prevented? (b) Yellow fever? (c) Hookworm disease?

9. Why are camps long occupied dangerous?

10. Give a chemical test for the presence of blood in the urine.

MATERIA MEDICA AND THERAPEUTICS.

(*Two hours.*)

1. In what manner do the following drugs stimulate diuresis: Potassium acetate; digitalis, and the nitrates?

2. What is cocaine, from what derived, and what is its physiological action? its therapeutic uses, and how administered?

3. In what manner do the following drugs produce diaphoresis: Sodium salicylate; aconite, and ipecac?

4. What effects are produced when the following drugs are pushed to the physiological limit: Bromide potassium, acetanilid, phosphorus?

5. What are the symptoms of iodism? How prevented while continuing the drug?

6. Give the therapeutics and methods of treatment for the following intestinal parasites: (a) *Taenia solium*; (b) *Ascaris lumbricoides*; (c) *Oxyuris vermicularis*?

7. Define tincture, spirit, liquor, syrup, emulsion, cerate and ointment.

8. Given an acutely dilated stomach with retention of food; how should it be treated?

9. Write a prescription for a man about thirty-five years of age, medium weight, sedentary life and habit, a large eater "of substantial foods and the good things of life," and who suffers from frequent headaches; outline your advice and treatment and give reasons for the same.

10. What, if any, external applications or measures would you use in the treatment of disease of the lungs, (a) acute and (b) chronic? Give a physiological reason for your conclusion concerning the value of the same.

PRACTICE, PATHOLOGY AND DIAGNOSIS.

(*Two and one-half hours.*)

1. Mitral stenosis: Give (a) etiology; (b) pathology; (c) symptoms.
2. Give the diagnostic points in cancer infiltration of the stomach wall.
3. Dilatation of the heart: Give (a) etiology; (b) symptoms.
4. Cirrhosis of liver: Give pathology of alcoholic form.
5. What do you understand by (a) Infarction; (b) Thrombosis; (c) Collapse; (d) Syncope; (e) Shock?
6. Diabetes mellitus: (a) How does glucose accumulate in the blood? (b) What changes take place in the pancreas? (c) Describe acetonemia.
7. Mention four symptoms that are pathognomonic of the disease.
8. Give physical signs of aortic regurgitation.
9. Actinomycosis: Give (a) definition; (b) etiology; (c) symptoms.
10. (a) What conditions predispose to cerebral hæmorrhage? (b) Give the symptoms and pathology of cerebral softening.

QUALIFIED JULY 11 AND 12, 1911.

Orcutt, Wallace L., Yale, 1911.

Hyde, Charles E., Yale 1910.

Kilbourn, Joseph B., P. & S., Balt., 1911.

Bailey, Neil H., P. & S., Balt., 1911.

Roche, Thomas J., P. & S., Balt., 1911.

Shea, John F., P. & S., Balt., 1911.

Flanagan, George M., P. & S., Boston, 1911.

La Pierre, Arnaud J., Univ. Vt., 1910.

Cantarow, Daniel, Tufts, 1911.

Symkowski, Bronislaw L., Balt. Med., 1911.

Kepp, Howard M., Balt. Med., 1911.

O'Neil, William H., Balt. Med., 1911.

Rice, Richard W., P. & S., Balt., 1909.

Madden, Leone I., Harvard, 1910.

Branth, J. Hermann, Miami Med., 1875.
Hartnett, Joseph D., Balt. Med., 1911.
Levy, Louis H., Yale, 1911.
Flynn, Charles T., Yale, 1911.
Kline, Benjamin S., Johns Hopkins, 1911.
Vail, Thornton E., Johns Hopkins, 1911.
Reynolds, Harry St. C., Yale, 1910.
Smernoff, Abraham A., Yale, 1909.
Harvey, Samuel C., Yale, 1911.
Booth, Lewis S., Yale, 1911.
Little, Hermann C., Yale, 1910.

NOVEMBER 14 AND 15, 1911.

Fischer, W. J. H., Yale, 1911.
Wilson, F. C., Univ. Vt., 1911.
Jenkins, C. H., Balt. Med., 1911.
Gillespie, W. B., Albany, 1909.
Curley, W. H., Cornell, 1909.
Brace, E. C., Univ. Vt., 1911.
Irwin, V. J., Jr., Yale, 1909.
Oelschlier, H. C., Jeff., 1911.
Weadon, M. L., Univ. Coll. Med. (Richmond), 1905.
Corwin, M. S., Univ. Vt., 1907.
Jones, C. E., Jr., Univ. & Bell., 1909.
Callahan, J. W., P. & S., Balt., 1911.
Edmundson, H. T., P. & S., Balt., 1911.
Wilson, McL. C., Cornell, 1904.
Terrill, H. S., Yale, 1911.
Carelli, G. F., Yale, 1911.
Desrosiers, T. L., Balt. Med., 1911.
McDonald, T. J., Yale, 1902.
Brayton, H. W., Harvard, 1911.
Birdsong, T. L., Johns Hopkins, 1909.
Saltz, Thomas, Jeff., 1911.
Finckelstone, B. B., P. & S., Balt., 1911.
Kimzey, J. A., P. & S., Balt., 1910.

Lear, M., Yale, 1911.
 Rosenthal, J., L. I. Coll. Hosp., 1910.
 Costello, H. M., Johns Hopkins, 1911.
 Levy, William, Yale, 1910.
 States, E. J., Yale, 1911.
 Wilson, L. A., Yale, 1911.

MARCH 12 AND 13, 1912.

Harrington, A. T., Harvard, 1910.
 Tyler, G. T., Med. Chi., 1901.
 Ross, D. L., McGill, 1887.
 Morrison, F. J., P. & S., Balt., 1911.
 Wagner, H. S., Univ. Mich., 1903.
 Campbell, H. B., Univ. Penn., 1909.
 Murray, T. J., Univ. Md., 1910.
 Fauver, E., Columbia, 1909.
 Farley, E. B., Yale, 1911.
 Stroebel, J. E., Temple, 1909.
 Cahill, G. F., Yale, 1911.
 Cunningham, W. F., Yale, 1911.

(8) Report of the Committee on Scientific Work, by Dr. George Blumer (New Haven):

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK.

Mr. President and Gentlemen of the House of Delegates:

The Committee on Scientific Work begs to report that in preparing the programme for the year they had in mind the following desiderata:—(1) Limiting the number of papers so that there should be plenty of time for discussion, (2) arranging the papers so that different specialties were represented and papers on kindred subjects were grouped, (3) having papers presented by representatives from different portions of the state, and (4) choosing those to open discussions who have special knowledge of the subjects discussed. The programme is as follows:

PROGRAMME.

WEDNESDAY AFTERNOON, MAY 22, 1912, 2 P. M.

The Nervous Manifestations of Pneumonia—Dr. John C. Lynch, Bridgeport. (Discussion opened by Dr. Harold S. Arnold, New Haven, and Dr. Nelson A. Pomeroy, Waterbury.)

The Responsibility of the Insane—Dr. Henry S. Noble, Middletown. (Discussion opened by Dr. Whitefield N. Thompson, Hartford, and Dr. James M. Keniston, Middletown.)

Experimental Nephritis and Its Clinical Significance—Dr. Max R. Smirnow, New Haven. (Discussion opened by Dr. George Blumer, New Haven, and Dr. Charles J. Bartlett, New Haven.)

The Present Status of the Vaccine Treatment of Diseases of the Ear, Nose and Throat—Dr. Frederick N. Sperry, New Haven. (Discussion opened by Dr. E. Terry Smith, Hartford, and Dr. Carl E. Munger, Waterbury.)

Open Air Schools—Dr. Henry M. Steele, New Haven. (Discussion opened by Dr. Henry F. Stoll, Hartford, and Dr. Thomas G. Sloan, South Manchester.)

THURSDAY MORNING, MAY 23, 1912, 9.30 A. M.

The Treatment of Tumors of the Mammary Gland—Dr. Philip W. Bill, Bridgeport. (Discussion opened by Dr. George N. Bell, Hartford, and Dr. D. Chester Brown, Danbury.)

Some Reminders on Fractures—Dr. Augustin A. Crane, Waterbury. (Discussion opened by Dr. Ansel G. Cook, Hartford, and Dr. William H. Carmalt, New Haven.)

Adventitious Bands About the Caecum—Dr. Joseph M. Flint, New Haven. (Discussion opened by Dr. William F. Verdi, New Haven, and Dr. Everett J. McKnight, Hartford.)

The Surgical Treatment of Goitre—Dr. O. C. Smith, Hartford. (Discussion opened by Dr. Harry M. Lee, New London, and Dr. Leonard W. Bacon, Jr., New Haven.)

THE PRESIDENT'S ADDRESS, 12 M.—John G. Stanton, New London.

THURSDAY AFTERNOON, MAY 23, 1912, 2.30 P. M.

Recent Developments in the Diagnosis and Treatment of Tuberculosis—Dr. William B. Bartlett, Hartford. (Discussion opened by Dr. Frank B. Standish, New Haven; Dr. Leonard J. Loewe, Falls Village, and Dr. Stephen J. Maher, New Haven.)

The Diagnosis and Complications of Atypical Pneumonia—Dr. Kate C. Mead, Middletown. (Discussion opened by Dr. Fritz C. Hyde, Greenwich, and Dr. Charles J. Foote, New Haven.)

The State Board of Health—Dr. Edward K. Root, Hartford. (Discussion opened by Dr. Charles P. Botsford, Hartford, and Dr. John W. Wright, Bridgeport.)

Ankle Clonus in the Absence of Organic Disease of the Central Nervous System—Dr. Wilder Tileston, New Haven. (Discussion opened by Dr. John C. Lynch, Bridgeport, and Dr. Max Mailhouse, New Haven.)*

GEORGE BLUMER, *Chairman.*

(9) Report of Committee on Honorary Members and Degrees, by Dr. Nathan Mayer (Hartford):

REPORT OF THE COMMITTEE ON HONORARY MEMBERS AND DEGREES.

Mr. President and Gentlemen of the House of Delegates:

The Committee on Honorary Members and Degrees have to report that no names have been referred to it for consideration, either for honorary membership, or for the conferring of a degree.

Respectfully submitted,

NATHAN MAYER.

(10) Report of the Committee of Arrangements, by Dr. Henry W. Ring (New Haven):

REPORT OF THE COMMITTEE OF ARRANGEMENTS.

Mr. President and Gentlemen of the House of Delegates:

The only report that seems called for from the Chairman of the Committee of Arrangements is the announcement of the

* Illness prevented Dr. Tileston from reading this article.

plan for this meeting. The Scientific Session will be held at two o'clock this afternoon, in the Palm Room; and the Scientific Sessions to-morrow will be held in the same room. This room will be left for committee meetings that may be necessary; also for future meetings of the Council and the House of Delegates.

The Committee of Arrangements invites the State Society to a smoker in the Palm Room this evening at about 8.30. At this smoker there will be some form of entertainment and a collation.

To-morrow evening, the regular annual banquet of the Society will be held, also in the Palm Room, at seven o'clock. So far as possible, the Committee would like to know to-day who will attend this dinner. I know that it is very difficult to find this out, but I also know that it is very difficult to provide for twenty-five or thirty more than we have been notified will be there. Announcements of your intention to attend can be made to any member of the Committee, Drs. Ramsay and Arnold and myself.

It is desired that, if possible, the meeting in the Palm Room should be over not later than 5.30; so as to give time for the preparations for the banquet there. It seemed better to have it in that room than in the Ballroom up-stairs, because the latter is so large. We hope to have one hundred and fifty at the dinner.

There is nothing else of particular interest to tell you, only that the Committee would be glad to dispose of the tickets at any time.

(11) Report of the Committee on Colony Senatoria for the Nervous Poor.

THE SECRETARY: The Chairman of that Committee is Dr. Rienzi Robinson, of Danielson. Mrs. Robinson wrote me a few days ago that Dr. Robinson had been ill and was in a hospital, suffering with carbuncle; and that, on account of this illness, he had been unable to get the Committee together. Hence, he had no report to offer. I should like to move that the Committee be continued for another year.

The motion was seconded and carried.

(12) Report of Committee on State Farm for Inebriates, by Dr. Frank H. Barnes (Stamford):

REPORT OF COMMITTEE ON STATE FARM FOR INEBRIATES.

Mr. President and Gentlemen of the House of Delegates:

The Committee of this Society, appointed at the May, 1911, meeting to consider the question of establishing a State Farm for Alcoholics in Connecticut, respectfully submits the following report:

The Committee had five meetings, the first, in New Haven, on November 15, 1911; the second, in New Haven, on December 15, 1911; the third, in Bridgeport, on January 16, 1912; the fourth, in Hartford, on February 15, 1912; the fifth and last meeting, in New Haven, on March 28, 1912.

At the first meeting, Dr. F. H. Barnes of Stamford was made chairman of the committee and Dr. R. L. Rowley of Hartford, secretary. (The secretary's detailed report of all meetings is handed to you under separate cover.)

At the various meetings the question of whether a state farm was desirable and feasible or not was carefully discussed. Many letters were written by our secretary and all the members spent considerable time and trouble in getting all the data possible. We found that there had been previous unsuccessful efforts made to get an appropriation from the Legislature for this purpose, but we, the members of the Committee, believe that the matter was not brought to the attention of the legislators as carefully as it might have been. We know that it will require a favorable public opinion to obtain necessary appropriations for this end and it has been our endeavor to let people generally know that such a farm has been asked for.

There seems to be a growing belief, held by the officers of the state and public men generally, as near as we can ascertain, that such a farm should be provided so that unfortunates now listed as chronic alcoholics can be given an opportunity to receive proper hospital treatment. Your Committee, therefore,

makes the following recommendations: First, that a state farm for male inebriates is necessary and feasible; that an institution of this kind for women is less necessary and not feasible at this time. As to the location, such an institution should not be nearer than five miles to any considerable center of population. A tract of land of at least two hundred acres should be procured, with available farm buildings, if possible. Such a tract of land should be located west of the Connecticut River. It should have a first-class water supply. The institution must be easily accessible and adequate transportation facilities must be provided. Buildings should be provided for the accommodation of two hundred patients, also necessary officers and employees. Buildings should all be of fire-proof construction.

The superintendent should be a medical man of adequate institutional experience. Facilities should be provided for outdoor occupation for all the able-bodied inmates and for indoor occupation in inclement weather. The Committee considers an appropriation of \$250,000 necessary to provide for the required buildings and land. The Committee is also of the opinion that five per cent. of all state liquor licenses would be sufficient for the maintenance of this institution for the first two years and should be applied for this purpose. We also believe that this amount can be progressively reduced after that time. It is our belief, after investigation, that the proposed institution would not in any way duplicate or conflict with the work of any other state institution. We would accordingly recommend that this Society instruct its committee on legislation to attempt to secure the passing of a bill by the next general assembly of the State providing for the establishment of a State Farm for Alcoholics as outlined above.

Our Committee worked together in the utmost harmony and these recommendations are the unanimous vote of its members.

Respectfully submitted,

FRANK H. BARNES.

(13) Report of Committee on Medical Inspection of Schools, by Dr. Edward W. Goodenough (Waterbury):

REPORT OF COMMITTEE ON MEDICAL INSPECTION OF SCHOOLS.

Mr. President and Gentlemen of the House of Delegates:

Last year your Committee met in the office of Dr. E. J. McKnight, Chairman of the Legislative Committee. It was so late in the session of the Legislature that new legislation was closed and, after discussion with the members of the Educational Committee, it was deemed inadvisable to make any further changes in our school inspection law during the 1911 session.

I have written during the past month to school superintendents of the larger towns and cities and have received forty-three replies. I have also written to the Medical Town Health Officers of the State and to the County Health Officers.

I find a widespread interest in medical inspection. The process of education in this line has developed so much literature that any one of us can get a fair grasp of what is accomplished in other states and countries.

The American School Hygiene Association held an annual congress in Boston on March 28 and 29 of this year. Many valuable suggestions were made at this meeting. Some change should be made in our state medical inspection laws. New Jersey and Massachusetts both have compulsory inspection laws. Our present permissive law needs some change to make it more practical for our school system. Whatever laws are made here on health lines, it is surely desirable that the medical profession should have some say as to their modification.

The following cities and towns have paid inspection of some sort.

New Haven has at present five doctors and three nurses, at an expense of thirteen and one-half cents per pupil. The doctors are employed by the Health Department. It is the opinion of at least one member of the Health Board that fewer doctors and more nurses, with better pay for the physicians,

would promote more efficient service. Also that the Health Board and Board of Education can in some way through a joint committee make these school appointments.

Hartford school inspection is under control of the Health Office. Inspections are made in some schools twice, in others once a week. The inspectors are loaned to the schools and examine for physical defects when infections do not require their attention.

Bridgeport has one doctor and one nurse employed by Health Board, at an expense of \$2,000 a year. Dr. Sherman is very much interested in the work and has accomplished much.

In Waterbury, we have two physicians who are paid \$600 each and two nurses who are paid \$800 each. These appointments are made by the Health Board.

New Britain has both doctor and nurse at an expense of twenty-six cents per pupil.

Meriden employs three doctors at \$250 each and a nurse for \$600. School Board.

Middletown has a physician who visits the schools once a month without fee and a nurse who is paid \$70 a month.

New London has inspection by five unpaid physicians, and has a school nurse who is paid \$900 a year.

Stamford has two physicians who are paid \$400 each and a nurse who receives \$600.

Torrington has a school nurse who is paid \$600 a year.

Ansonia pays its health officer \$500 a year for school inspection.

Bristol pays two physicians, expense 1911, \$748.15; has no nurses.

Derby pays its doctor and nurse \$200 a year and has one inspection a year.

South Manchester has one physician under School Department at an expense of ten cents per pupil, bi-weekly visitation, with school baths, a school nurse, and special examination of all children once a year at an expense of \$50.

Naugatuck has six doctors who are paid \$100 a year each. Inspection three times a year of all pupils. Every scholar

absent three days in succession must get medical permit before returning to school.

Winsted employs a physician at an expense of thirty cents per pupil and has arrangements whereby the district nurse may be used if necessary.

At Willimantic, the Health Officer is paid to inspect the State Normal Schools.

In Wallingford, \$500 a year is appropriated for medical inspection.

In Wethersfield, a general inspection is made once each term by the Health Officer under direction of the Board of School Visitors.

Greenwich has three physicians who are paid \$400 each and one who is paid \$50 to look after a school in his neighborhood. There is a school nurse employed by private contribution who is paid \$45 a month.

Danbury, Norwich, Rockville, Putnam, South Norwalk and Norwalk have no paid school inspection.

In Branford, a private nurse is employed.

There are then twenty-one towns where some form of paid inspection is given to school children.

Nearly all of the Town Health officials make some form of building inspection. This includes oversight of needed ventilation and repair of school buildings; also the water supply, and out-house drainage.

At the request of the Secretary of the State Board of Health, Dr. Kate C. Mead of Middletown read a very able paper at the annual meeting of State Health officials in regard to medical inspection of schools. The Chairman of your Committee also read a paper covering some phases of the subject.

Dr. C. S. Botsford presented his views to the County meeting at Putnam and Dr. T. G. Sloan did the same at the Hartford County meeting.

There is much yet to be done to educate the towns in the value and necessity of medical school inspection. A state-wide compulsory law cannot yet be passed. The needs of such work in every town can be presented in such a way that all the larger

towns will require inspection, and the smaller towns will ask as a privilege for that inspection which they would not resent as forced upon them.

Full benefit will come in each town only as it considers child health and child development above politics and worth all reasonable expense. We want in every large city some physician with special training and special love for this work who will oversee it, and will be reasonably well paid for his services. Prof. L. W. Rapeer of New York believes we should have more nurses and fewer physicians. The doctors should be paid by the hour for time actually spent in the schools. Dr. Mead specially pleads for *trained* workers and the reports from Bridgeport of Dr. Sherman's work for instance show what interest and training will do.

From Professor Rapeer let me quote:

"In most school systems there needs to be organized a Department of Hygiene with a physician-physical-educator as director, whose business it will be to correlate and make most effective the following phases of educational hygiene:

- a. School sanitation,
- b. Physical education,
- c. Medical supervision,
- d. Health instruction,
- e. The hygiene of instruction.

"Such a director in the average city can supervise part or all of the physical training and do part of the physical examination of children and so save some salaries paid now to physical trainers and to physicians—enough in certain cases to almost equal his own salary. The health work will grow when we get the big man to make it grow. Such men will come forth when cities demand them. The advantages are immeasurable."

Respectfully submitted for the Committee,

E. W. GOODENOUGH, *Chairman.*

(14) Report of Committee on National Legislation, by Dr. Everett J. McKnight (Hartford):

REPORT OF COMMITTEE ON NATIONAL LEGISLATION.

Mr. President and Gentlemen of the House of Delegates:

The conference was held in Chicago, Ill., February 26-27, 1912. The first day's session was presided over by Dr. Arthur Dean Bevan, chairman of the Council on Medical Education, whose opening address was "The Modern Medical School."

"The modern medical school must be developed as the medical department of the university. Its function will be (a) to turn out well-qualified practitioners of medicine, and (b) to add its quota to the definite knowledge of medical matters. To fulfill these functions the medical school must have (a) well-qualified students, (b) expert teachers, (c) well-equipped laboratories, and (d) ample clinical material. Medical students should be required to have had in addition to their preliminary and secondary education (a) one or two years devoted to higher physics, chemistry and biology; (b) should complete four years of medical study, and (c) take a year's internship in a good hospital." Any higher requirements than this would delay the age of graduation to twenty-eight or twenty-nine years, which is considered too old—an extreme which does not prevail in England, France or Germany, which stand high in educational and scientific matters.

The intern year in the hospital should be made a requirement. There are at least 2,500 hospitals in this country having a total of at least 200,000 beds. There is no doubt that internship could be provided for the 4,000 senior medical students now enrolled in the medical colleges of this country.

As at the present time it is difficult to obtain trained teachers on account of the lack of funds, the great task of the future is to secure through our universities and from other sources sufficient funds to place the medical schools on a full university basis, and at the same time to reorganize our medical departments

on the general lines of the German universities so as to develop the trained teachers which are so much needed. In this reorganization we must secure state aid and private endowment and the support and coöperation of the university officers and trustees. There must also be secured a proper affiliation between our great charity hospitals and our medical schools.

A paper on the "Present Status of Medical Education in the United States" was read by Dr. N. P. Colwell, Secretary of the Council on Medical Education, and one on "Some Administrative Phases of Entrance Requirements" by Professor K. D. Swartzel, Entrance Examiner to the Ohio State Board.

By invitation Mr. Frederic G. Hallett of London, England, Secretary of the Conjoint Examining Board of the Royal College of Physicians of London and the Royal College of Surgeons of England, gave an address on the organization and system of examinations of said Boards, which was listened to with a great deal of interest, and was printed in the Journal of the Association for March 16th.

One of the most interesting papers of the session was that by Dr. Reuben Peterson, Professor of Obstetrics and Gynecology in the University of Michigan. In May of last year the faculty of the University of Michigan appointed a Committee of three to consider the whole subject of hospital internship. A questionnaire was sent to all general hospitals having one hundred beds or over asking all who were willing to coöperate in systematizing the intern question to fill out and return the questionnaire which called for information regarding the number of beds, the number of interns, their manner of appointment, the nature of examinations, length and nature of service of intern, and his relation to clinical laboratories. Inquiry was also made regarding the pathologic department, the out-patient service, library facilities, and accommodations for and authority over interns. These were sent to 155 hospitals, 92 of which replied; 63 were placed on the approved list and a résumé of the salient facts relating to them printed in a booklet and given to the members of the junior and senior classes with the request that they confer with the Committee for more detailed information. So

far the plan has worked out to the satisfaction of the faculty, students and the hospitals in which interns were so placed.

An inspection and report upon the hospitals in the country which make use of interns was strongly urged by the writer who thought it should be done under the auspices of the Council on Medical Education of the American Medical Association. While this might cause some dissatisfaction it would tend to bring about better conditions in the poorer hospitals just as similar investigation of our medical schools has elevated the standards in those institutions. There was a general discussion upon this paper, at the conclusion of which the following resolution, offered by Dr. William J. Means of Columbus, Ohio, was adopted:

RESOLVED, It is the consensus of opinion of this body that a fifth year of hospital instruction is desirable as a requirement for the completion of the medical course and in order to lay the foundation for the adoption of such a course in the fifth year, the Council on Medical Education is requested to inaugurate an inspection of the hospitals of the country as to their facilities for giving instruction to interns and to publish the data thus obtained as it now does of the medical schools.

The prevailing opinion seemed to be that there should be a National Committee composed of representatives from the medical schools and from the hospitals which should give information and assistance in securing proper internship for recent graduates, that the intern would receive a broader training and more benefit from securing a position in a hospital remote from the medical school from which he graduated, and that a degree of Bachelor of Medicine should be given at the close of the four years course in the medical school and the degree of Doctor of Medicine only after a year of internship in an accredited hospital or its equivalent.

President Craighead of Tulane University read a paper on "Medical Education in the South."

On the second day Dr. Henry B. Favill of Chicago, chairman of the Council on Public Health and Legislation, was in the chair.

Reports on legislative action in the different states during the year had been printed beforehand and your delegate was pleased

to note that no state in the Union had made so good a showing as the one which he represented.

Considerable time was devoted to the consideration of the present status of Vital Statistics in the United States, State Legislation on Food and Drugs, Railway Sanitation and Federal Inspection of Dairy Products.

The present status of the so-called Owen Bill for the establishment of the United States Public Health Service was considered. I would be negligent of my duty if I did not call your attention to this most important measure and urge upon every member of this Society who has any influence with our Senators and Representatives in Congress to use every effort to secure its passage.

Taken as a whole the Conference was of more than usual interest, and your Delegate feels that with what has been accomplished in this State along the lines of medical education and medical legislation and in what can be better accomplished in the future through attendance upon this Conference, he has been able and should continue to be able to deliver results commensurate with the outlay.

Respectfully submitted,

EVERETT J. MCKNIGHT.

(15) Report of Delegates to the American Medical Association, by Dr. Everett J. McKnight (Hartford):

REPORT OF DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION.

Mr. President and Gentlemen of the House of Delegates:

It would be impossible, without undue encroachment upon your time, for your delegates to present anything like a detailed report of the work done by the House of Delegates of the American Medical Association at the 62d annual meeting of that body at Los Angeles, Cal., on June 26-30, 1911.

Few members of this Society realize the number and importance of matters which come up for consideration at these meet-

ings. All the work carried on by the officers, and various councils and committees of the American Medical Association, including the publication of the journals, the investigation of drugs, etc., is under the control of the House of Delegates. The work of the Committee on Public Health and Instruction, including the different bureaus and committees under its control, namely: the bureaus on Organization, on Protection of Medical Research, on Medical Legislation, on Public Health, on Public Instruction, the committees on Public Health Education, on Uniform Regulation of Membership, on Visual Standards for Pilots, on Prevention of Blindness, on Ophthalmia Neonatorum, on Blindness produced by the Ingestion of Methyl or Wood Alcohol, on Blindness from Trachoma, on Congenital Blindness, on Hygiene of the Eyes, on Common Accidents in Mills, Trades, etc., which can be greatly prevented, is all reviewed and acted upon by the House of Delegates.

The same is true of all the other councils and committees, as the Committee on Scientific Research and the Council on Medical Education, which has accomplished such excellent results in ridding the country of many of the poorer class of medical colleges and in elevating the standard of medical education.

Some of the special measures considered at the Los Angeles meeting were a reduction of the tariff on certain instruments, glassware and scientific books written in the English language, the establishment of a section on hospitals, and an amendment increasing the effectiveness of the Judiciary Council.

A great deal of time was devoted to the consideration of changes in the membership of the Association. At present the business of the Association is transacted by the House of Delegates, the members of which are elected by the component state societies. Many of the members of these societies are not members of the American Medical Association and still have the right to vote for the delegates who transact the business of that Association. This matter of uniform membership was carried over for action at the coming meeting.

On recommendation of the Section on Preventive Medicine the following proposal and resolution was adopted:

1. That syphilis and gonococcus infections be made reportable.
2. That boards of health be supported by the medical profession in controlling the sources of infection of these diseases without prejudice as to sex or occupation.
3. That the medical profession do everything in its power to advance the moral and ethical issues involved.
4. That measures for popular education relating to these diseases be encouraged by every member of the Association.
5. That the American Association for Sex Hygiene be invited to confer with the Council on Health and Public Instruction in order to develop practical methods for obtaining the desired results.

Whereas, The belief and teaching on the part of some of the laity and possibly on the part of some of the medical profession that sexual intercourse on the part of the adult male is essential to sound health, is calculated to encourage promiscuous intercourse among those not better informed:

Resolved, By the American Medical Association, that in the opinion of the Association continence is not inconsistent with perfect health on the part of individuals of either sex, and promiscuous intercourse seriously jeopardizes the health of the individual and gravely menaces the integrity of the race.

Dr. Abraham Jacobi was elected President of the Association.

A resolution was passed expressing a desire that at an early date a course in ophthalmology requiring previous graduation in medicine and one year's work in an accredited ophthalmic hospital and dispensary service, shall be established in each medical school possessing the necessary facilities.

This partial report will give you some idea of the important matters which come up for consideration by the House of Delegates. Your delegates attended every meeting of the House of Delegates, thereby depriving themselves of any personal benefit they might have derived from attending the scientific meetings of the Association. They appreciate the action of this Society in defraying a part of the expenses incurred in attendance upon this meeting. As there has been some adverse criticism of this action, your delegates desire to state that in so far as they have been able to ascertain there is no state society in the Union which does not pay the total expenses incurred by its delegates in attendance upon these meetings. Certainly no society should expect one of its members at his

own expense to leave his work at home and to put in four or five days of unusual and arduous work with no possible chance of acquiring personal benefit.

We believe the results obtained more than compensate for the outlay. We venture the statement that no organization in the world has ever accomplished more for the welfare of the human race, for the preservation of health and the prolongation of human life, than this same American Medical Association, and we point with no little pride to the fact that this Society, one of its component parts, stands among the foremost in the Union in what it has accomplished along these lines, thereby making it one of the most important factors in conserving public health, the greatest natural resource of the State.

These results could never have been accomplished but for the instruction, the information and the enthusiasm which your delegates have acquired while in attendance upon the meetings of the House of Delegates of the American Medical Association.

Respectfully submitted,

CHESTER BROWN,
EVERETT J. McKNIGHT.

The Banquet.

The annual banquet was held at Hotel Taft, on Thursday evening, May 23d, at 7 o'clock. One hundred and fifty members of the Society were present. Dr. Henry W. Ring acted as toastmaster. The following were the speakers:

PROF. HENRY C. EMERY.

REV. OSCAR E. MAURER.

PROF. CHARLES M. BAKEWELL.

MR. EDWARD D. ROBBINS.

PRESIDENT'S ADDRESS.

President's Address.

The Medical School.

JOHN G. STANTON, M.D., NEW LONDON.

A wise man, be he merchant or professional, takes account of stock at intervals, and when everything is inventoried and the ledgers are balanced up, the outcome will show whether there has been such efficiency as to produce the highest and best results with the means at hand. In this pressing and eager age the demand for efficiency has become insistent and in every department of human endeavor this demand for efficiency, or the ability to accomplish results, becomes more and more insistent. The spirit of fierce competition which characterizes the American people is calling in every direction for men well grounded and equipped for the duties and requirements peculiar to their several vocations. This is true of professions as well as of mercantile pursuits, and it concerns the medical profession in a very peculiar degree. Whatever one's pursuit in life, it is morally and ethically true, that every honorable man is bound to execute within himself a deed of trust, between himself and the public which he seeks to serve, whose confidence, respect and support he hopes to gain.

This obligation is mandatory to every individual, whatever the line of action, and is recognized in just such proportion as he perceives that his duty to himself and his fellow men must follow the line of rectitude, his purpose high with full intention to pursue his course towards the desired end in the way that shall bring that high moral satisfaction which the observance of that obligation alone can bring about. These observations may appear platitudinous; but as the eternal verities and truisms remain constant, in the absence of their application in the conduct of life their repetition is at times needful to bring us back

into the right line. Self-satisfaction and respect cannot be gained unless one is fully assured within himself that he has conscientiously and faithfully fitted himself to fulfill the requirements of the calling which he has adopted.

This is particularly true of the physician, whose relation to his fellow beings is of quite a different nature from that of the merchant, who deals in material things.

The intimate family relations into which he is brought, the confidence he seeks to inspire, the love and sense of obligation which come to him as the result of sympathetic care and successful treatment, call for a man, who has felt the obligation to prepare himself by diligent and honest effort to assume the responsibilities which fall to him, when he undertakes the practice of medicine. That is the good physician who feels the honor of his profession, the delicacy of his position in relation to the family, the ethical relation to his fellow physicians, his responsibility to the public at large; and feeling these things makes himself an efficient instrument to accomplish good results and compel that success, which comes from study and thought and observation to make the competent physician and honored citizen of whom it shall be said as of Bayard of old, "*un homme, sans peur et sans reproche.*"

The empiricism of the past is fast disappearing under the precise methods of the present, and the dispensations of the Deity and visitations of God which have devastated mankind in the history of the past, under the probings and searchings of the army of patient investigators, are being shown up in this present age as preventable diseases in most cases. Man's most formidable enemies (and friends as well) are not the visible terrors, the giant forces which rend and tear and bring quick destruction in their wake, but the unseen to the naked eye, the infinitesimal, the microscopic myriad forms of life, which contain within their essence either the potency of wholesome destruction or that beneficent, wholesome vitality, which in connection with metabolism and chemical change alone make life possible. The results of the investigations of the patient, persistent, plodding, but enthusiastic searchers after the hidden secrets of the cause of

life and disease, when proven, are accepted as facts, but to the student of medicine they must be brought through study and instruction in the medical schools.

Are our medical schools of to-day fully up to the requirements necessary to a complete and thorough foundation and superstructure for instruction? Are they teaching thoroughly and satisfactorily along lines which shall fit their students at graduation to take up the responsibilities of life and death which come to him who assumes to practice the profession of medicine?

The conservatism and thoroughness of the schools of the old world could of necessity not be expected of our schools of two or three generations back. The supreme problem with us at that time was the founding of a nation and perfecting a government in a new and virgin land. Nature had spread out before us with the hand of bounty a land teeming with riches, the ground only to be scratched to bring forth bountiful harvests, while beneath the surface lay wealth beyond the dreams of avarice.

The natural consequence has been that we have pursued the path of material progress at the expense of intellectual and, possibly, moral growth. We have worshipped the golden calf. In the medical profession, as well as in the mercantile, we have tried short cuts to success. This is not saying, by any means, that these conditions are universal. There are first-class, fully equipped medical schools at the present day, where the medical student *must* fulfill the requirements of a full, thorough and well-grounded medical education before he can gain his diploma, which should never be other than a true warrant of his fitness to enter this most honorable profession. What is true of a comparatively few medical colleges is far from true of a host of others. To substantiate this statement and at the risk of being somewhat tedious, let me quote from Bulletin No. 4 of the Carnegie Foundation for the Advancement of Teaching, on Medical Education in the United States and Canada.

Alabama—two schools.

"The entrance standards are low, the schools are inadequately equipped, and they are without proper financial resources," etc., etc.

Arkansas—two schools.

"Both the Arkansas schools are local institutions in a state that has at this date three times as many doctors as it needs. Neither has a single redeeming feature."

California—ten schools.

"Legal enactment, fixing a sound basis for future practitioners, of whatever school, the grant of authority to the state board to close schools flagrantly defective in either laboratory or clinical facilities, or the institution of practical examinations for license. Any one of these measures would at once wipe out at least seven of the existing schools with distinct advantage to the public health of the state."

Colorado—two schools.

"The state is overcrowded with doctors. It can therefore safely go to a higher standard; indeed the new law provides that, after 1912, all applications for license must have had, previous to their medical education, a year of college work. As this is a practice, and not an educational requirement, the Denver school may still continue to train low-grade men for adjacent states."

District of Columbia—three medical schools, plus two post-graduate (Army and Navy).

"Of the medical schools in Washington, Howard University has a distinct mission—that of training the negro physician, and an assured future. The two other schools lack adequate resources as well as assured prospects. Neither school is now equal to the task of training physicians of modern type."

Georgia—five schools, four postgraduate.

"The situation to be dealt with in this state is so simple that there is no room for difference of opinion, as to what ought to be done."

Illinois—fourteen schools.

"The city of Chicago is in respect to medical education the plague spot of the country." "The entire situation presents a rare opportunity for medical statesmanship."

Indiana—two schools.

"The situation in this state is, thanks to the intelligent attitude of the (Indiana) University, distinctly hopeful."

Iowa—four schools.

"Of the four schools in the state none is at this time satisfactory. The Osteopathic school at Des Moines is a disgrace to the state and should be summarily suppressed."

Maryland—seven schools.

"Like Pennsylvania, Maryland has granted lump sums to private corporations engaged in charitable work. Six of the medical schools mentioned have thus combined to obtain from the state money enough to build and partly support their hospitals.

Should the state ever conduct its philanthropic business intelligently, these irresponsible methods would stop. The Johns Hopkins Medical School, for which neither the state of Maryland nor the city of Baltimore has ever done anything, is thus the only medical school in Maryland that either ought to or can live, and to its development greatly increased means should be freely devoted. At this time the Johns Hopkins University is the only academic institution in the state capable of conducting a modern medical school."

Mississippi—two schools.

"Of the two schools, that at Meridian is without merit. At a time when the state has already more doctors than it needs, the starting of a didactic school conducted by local practitioners of a small town is absolutely unjustifiable."

Michigan—twelve schools.

"Medical education is at a low ebb."

It is unnecessary to go through the whole list of states. Of the eight schools of Canada, McGill and Toronto are excellent. In general the conditions are about the same as in the United States, with its one hundred and forty-seven schools.

Connecticut with its one school has been left to the last, that the force of the criticism may come home to us who are of necessity deeply interested.

Of the Yale Medical School it was said in 1910, "as the school now stands, it would, in point of facilities, still have to be classed with the best type of those on the high-school basis; for though it has been advanced to a two years' college basis, a more liberal policy ought to be pursued. The laboratory branches ought to be better manned, so that the instructors may create within them a more active spirit.

A university department of medicine cannot largely confine itself to routine instruction, certainly not after requiring two years of college work for admission to its opportunities. For the same reason the clinical facilities should be extended, possibly through a more intimate connection with the present hospital.

Its wards should be more generously used, more beds should be made accessible within them, the missing pavilion for contagious diseases provided. Enough money ought to be spent in the dispensary to ensure in every department systematic and thorough discipline, in examining patients, keeping records, etc. To make these improvements, larger endowment is required. As the school is one of the few in New England so circumstanced as to have a clear duty and opportunity, it behooves the University to make a vigorous campaign in behalf of its medical department." This was the criticism in 1910.

Through the courtesy of Dr. Blumer, Dean of the Medical Faculty of Yale University, the present situation may be summarized as follows:

"The Yale Medical School will have its centenary anniversary next year and efforts are being made to put the School on a modern basis about that time. This involves the raising of from one-and-one-half to two million dollars by the University. The University authorities have agreed to try and raise the money. Whether they will or not is entirely another matter.

Since the report was published in 1910 we have attempted in every way possible to meet the legitimate criticisms which Mr. Flexner makes on page 200. We have appointed an assistant professor of Anatomy who devotes his entire time, and a full-time instructor in anatomy. We have recently appointed an assistant professor in Pharmacology who will be a full-time

teacher, and we have just appointed an assistant professor of Surgery who is a thoroughly trained and experienced man. Our laboratory branches are still inadequately manned. Our professor of Physiology should have at least one full-time instructor and we should have an instructor in Hygiene and Preventive Medicine, preferably a full-time professor. In the last two or three years we have been able to obtain some money with which to pay certain men who supervise the work of the students in the dispensary and we think that we have very decidedly improved conditions at the dispensary over those which existed at the time of Mr. Flexner's visit. A contagious disease pavilion is in sight, the city having appropriated seventy-five thousand dollars for the erection of one on the grounds of the New Haven Hospital.

Our greatest lack at present is greater control over the New Haven Hospital. For a year we have been educating the directors, and at their annual meeting in January they unanimously adopted a report favoring closer affiliation between the two institutions. At the present time conferences are going on between the Hospital and Medical School authorities as to the details of closer affiliation. I feel sanguine that we shall obtain from the Hospital essentially what we want.

After all, our greatest need is men and that means endowment. We ought to be able to get the money. The school has always stood for high ideals and has always lived up to its published requirements. It can no longer exist as a first-class school under the present financial conditions."

To go no further, enough has been shown to demonstrate the contention that there is a host of indifferent or distinctly bad medical colleges. There is no need of naming the first-class medical colleges. They may be numbered on the fingers of one hand. They stand out as monuments of efficiency in contrast to the numerous mills of commercial inefficiency with their huge product of unequipped, uneducated, undesirable graduates, whose numbers go to increase the already overcrowded ranks of medical practitioners, hardly worthy of the name of physicians.

It would be an interesting psychological problem, did the limits of this paper permit, to study into the moral and ethical effect upon a man, who knowingly accepts an inferior school of instruction to gain the coveted diploma, when he is fully aware that a superior one offers him a better opportunity for that purpose. The ten cent store offers a showy article, but when it is hung on the wall, it might suffer by comparison.

We hear a great deal of the ethics of the profession, but not to be too severe, it would seem that a thorough course in ethics, and a stringent examination therein, might be of benefit.

A true gentleman (this term in its highest sense) does not need a code of ethics. He *is* one, and it is to be feared that he who *has* to be *taught* the code does not always follow the instructions. Our profession is overcrowded and that fact tends to practices in the pursuit of its pecuniary rewards which have a distinctly demoralizing effect. While the acquiring of a competency is an altogether laudable and necessary object in the pursuit of any profession, there is a peculiar obligation resting on the young physician in the beginning of his practice, that he should consider first and foremost his responsibility towards and interest in his patient. His first consideration should be a faithful, thoughtful study of the case in hand, a sympathetic interest in his patient as a fellow being suffering from disease, and a conscientious applying of himself to relief and cure, instead of the fee which he expects to receive for his service. He should have that highmindedness which considers the patient primarily and his fee as secondary, that he may feel that self-satisfaction and respect which comes from the knowledge that he is most true to himself when he considers his brother first. However great the pecuniary reward that comes to him, his sweetest reflection will be, that he has been able to relieve the sufferings of those who have come to regard him with confidence and love.

Taking the United States as a whole, physicians are four or five times as numerous in proportion to population as in older countries like Germany.

It is said there are more physicians in New York State than in all France.

The fault does not lie entirely with the too numerous low-grade medical schools. The public, the citizens of these United States, are to blame fully as much as the proprietors of the medical grist mills. A public which is not intelligent enough to understand that medical legislation should be for its own real benefit and conservation, and sends representatives into the legislative halls, who reflect their intelligence, or the lack of it, gets just what is inevitable, when it permits the chartering and continued existence of medical schools which have no *raison d'être* beyond the fact, that they are money-makers for their founders.

A necessary corollary to this is that a second- or third-rate medical school will, by the very fact of its low standard, send out second- or third-rate doctors, who, because of their low standard, will in the great majority of cases reflect the inferiority of their medical education in a lower conception of the ethics, morals and responsibilities of their profession, a blunted sense of professional honor; a greater readiness to follow the devious course towards the pecuniary reward by ways that are neither creditable nor honorable.

There is nothing new or startling in such a criticism, rather is it trite and perhaps a little overworn, but the deduction has biblical warrant in that "Figs do not come from thistles," even under modern methods of grafting, and a stream will not rise above its source.

The public seems to be suspicious of legislation directing or controlling medical practice to its best uses; for almost invariably whenever just restrictive legislation is proposed, which shall place the practice of medicine on a higher plane, and so be of direct benefit to the public, the public, the dear public, is more apt to listen to the protestations and objections of the army of fakirs and irregulars, patent medicine men, *et id omne genus*, who raise the cry of persecution, restriction of personal liberty, and the right to make a fool of one's self, which this class depends upon to garner its ill-gotten gains. We hear just now a great deal about the right of the people to govern themselves.

Theoretically this is a beautiful sentiment, but to the thoughtful mind this sentiment has an interrogation mark behind it, though the present popular unrest seems to indicate a questioning as to whether the people have been governing themselves, or on the contrary, whether they have not been governed with a vengeance by those who have been able to take advantage of the means placed within their grasp by a too confiding constituency. The question of medical education confronts a condition, not a theory. Remedial legislation is proceeding with halting steps, and goes only just so far as it is supported by an intelligent public opinion behind it. Consequently the task before us, who are competent to mould that opinion, is by every legitimate means to educate and satisfy the public that we are actuated by an honest desire in demanding a higher standard of medical education, and that the ultimate result sought and to be obtained, means a conservation of its own best interests, in the production of a class of physicians who shall be thoroughly educated in medicine, and competent to assume the responsibilities of a profession which enters so deeply into the family relation. As to the Yale Medical School there is the nucleus and foundation for a first-class school, but under the limitations, which hamper its work, the conscientious endeavor of its faculty falls short of its ambition because of lack of facilities and sufficient endowment to provide those facilities, which are absolutely necessary to raise the school to a standard of thoroughness and efficiency, commensurate with the present need and demand. The reputation of Yale as a university must needs suffer if it permits one of its coördinate departments to remain in an inferior position, as compared to similar departments in other universities, for lack of sufficient endowment.

It is incumbent upon the University, therefore, to make every endeavor to raise, as speedily as possible, an endowment large enough to thoroughly equip the Medical School with men and facilities to meet the just expectations of those who wish well of the school, and for its future as one of the first-class medical schools of the country.

Failing this, candor compels the conclusion, already being voiced in various quarters, that rather than trying to preserve a school which is not up to the highest standard, it were better the school be closed.

That would be a catastrophe, an unnecessary one, if the profession in the state, and the Yale men in it particularly, would only rouse itself to the evident necessities of the situation.

In conclusion: Are the members of the medical fraternity worthy and justified of their profession? Let each one hold up before his mental vision that mirror of his soul which reflects the truth, and find the answer.

PAPERS ON SPECIAL
SUBJECTS.

Nervous Manifestations of Pneumonia.

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It may be interesting to note that nervous manifestations are encountered in almost every case of acute infectious pneumonia. Clinically, these manifestations may be divided into two types, i. e., manifestations which occur in association and terminate with the crisis, "the nervous symptoms of pneumonia," and certain manifestations which occur during or after the attack and do not terminate with the crisis, "the accidents, complications or the secondary infections."

Of the nervous manifestations which arise during the attack, some of them at least seem to be due to the sudden, perverted physiological condition which the organism undergoes, as the result of the abrupt onset of the disease; others may be due to the high temperature, while other manifestations and possibly all of them may depend upon the toxins.

The toxins are many and various. Some may be developed within the invading organisms (endotoxins), while others may be developed from the tissues of the body by the destructive action of the pneumococci upon them (exotoxins). Of the toxins thus produced some may have a selective affinity for the heart, others for the liver and kidneys or the central nervous system; according to the usual order a sort of relationship is observed between them and under certain conditions one or the other may predominate and give rise to special pathological effects, which may explain the family types as well as the symptoms which characterize each case.

In about 80 per cent. of the cases of acute infectious pneumonia the patient is seized with a severe shivering fit, chill or rigor, intense and prolonged, more so than in any other disease except pyæmia or malaria. (Loomis.) The chill may last from

five minutes to half an hour or even to three hours. "Its abruptness and violence are characteristic." (Osler.)

It sometimes happens that there are two or three well marked fits of shivering, but they always occur during the first two or three hours of the illness. At times, in place of the chill, slight rigors, i. e., repeated cold sensations may run up and down the spine during the first or even the second day of the illness. This state is only met with where the pneumonia is of gradual or insidious onset (secondary or complicating pneumonia). In infants and young children vomiting (of a nervous type, that is, independent of food) or convulsions may take the place of the chill of adults.

In children, about 8 per cent. of the cases may begin with a rigor. About 72 per cent. of pneumonias of children are ushered in with vomiting of a nervous type, which as a rule subsides within a day or two, unless aggravated by improper food or medication. The vomiting may continue throughout the illness in about 4 per cent. of the cases.

Occasionally vomiting is accompanied by diarrhœa and when associated with transient palsies it may be mistaken for poliomyelitis. Convulsions usher in about 20 per cent. of the cases of acute pneumonia of infants and young children. When the convulsions recur and the child remains unconscious, the condition may suggest meningitis, but the rapidity and character of the breathing and the altered pulse respiration ratio is usually quite sufficient to prevent error.

A distinct chill is less frequent in senile pneumonia, but when an old person has a marked, prolonged chill, pneumonia should always be suspected.

"Although less frequent, it is more diagnostic than in adults. An intense fit of shivering with pain in the side ushers in about 50 per cent. of the cases of senile pneumonia."

Intense prostration may be the only symptom, or mania, vomiting, diarrhœa and collapse, or a semi-comatose condition not infrequently ushers in an attack of senile pneumonia (uræmic type).

In a very few cases stupor, coma and mental disquietude may be the only symptoms noticeable (apoplectic type).

The more intense the chill, the more virulent the infection, which implies that the toxins have reached the central nervous system from the growth of the pneumococci in the respiratory apparatus of the infected individual.

A sense of profound depression follows the chill which may result in death, or, as happens in a vast majority of the cases, reaction sets in with headache, pain, delirium and other nervous manifestations.

Headache is one of the most constant initial symptoms of acute pneumonia; as the disease progresses it becomes less severe. In some cases it may be the most distressing symptom throughout the attack, especially so, when the patient seems not to be otherwise severely ill.

There is no parallelism between the temperature range and the severity of the pain. The headache seems to be due to hyperæmia of the dura, but it does not mean that the headache is of purely vaso paralytic origin, as the direct action of the pneumotoxin on the nerve endings of the dura can by no means be excluded. (Schmidt.)

It seems to be the general impression that uncomplicated cases of pneumonia are free from pain, but such a view is fallacious, for all uncomplicated or central pneumonias are accompanied by toxic pains, which may be general or focal; when general, the patient complains of nuchal or lumbar pains, shooting down the extremities to the joints or general stiffness or soreness (general hyperalgesia).

Focal hyperalgesia is confined to the affected or healthy side and seems to be due to irritation of the intercostal nerves by the pneumotoxin, which irritation is referred to their peripheral distribution.

In complicated pneumonia one meets with the characteristic sharp, stabbing, "sub-mammary pneumonic pain-spot," intensified by deep inspiration, coughing, sneezing, hiccoughing, etc., which occur in 85 per cent. of the cases.

Basic pneumonia, associated with diaphragmatic pleurisy (gastric pneumonia), is ushered in with severe abdominal pain and the skin in the region where the pain is felt may be found to be hyperalgesic. The hyperalgesic area corresponds to the peripheral distribution of the eighth and ninth thoracic nerves.

Occasionally the pain is referred to either shoulder corresponding to the peripheral distribution of the fourth cervical nerve. In these cases of diaphragmatic pleurisy, pleuro-pericarditis and mediastinitis gastro-intestinal symptoms play the important rôle, while lung symptoms and signs do not manifest themselves until just before the expected crisis.

Such cases begin with sudden, acute, abdominal pain, vomiting, obstipation or diarrhœa with distension and rigidity of the abdomen, with or without jaundice. They closely simulate acute abdominal conditions and may lead to needless surgical interference if one is not extremely careful. It should not be forgotten that appendicitis may complicate acute pneumonia.

The pain is the most important symptom. It is referred to the line of insertion of the diaphragm or the epigastric or hypochondriac regions; a very constant and characteristic sign is the so-called "diaphragmatic button of Whittaker," a tender spot, two fingers from the linea alba at a level with the tenth rib. It is found when there is no subjective pain. There is tenderness along the attachment of the diaphragm and another very tender spot on this line near the spinal column.

At times acute apical pneumonia in children and young adults is ushered in with symptoms and signs of cerebro-spinal irritation. These symptoms are convulsions, followed by intolerance to light, headache, vomiting of a nervous type, i. e., independent of food, delirium, head retraction with arching of the spine and rigidity.

The symptoms are suggestive of acute toxæmia, intra-cranial inflammation or cerebro-spinal fever, and for the first twenty-four or forty-eight hours, it is often impossible to make a positive diagnosis. If in doubt, one should suspend judgment temporarily until the physical signs come to his aid, which as a rule occurs within a day or two with subsidence of the symptoms

of cerebro-spinal irritation. Movements aggravate these symptoms and cause pain. Tremors and slight spasms of the limbs may be encountered.

Cerebral pneumonia occurs most frequently in children and young adults, but one should bear in mind that the condition may occur in the aged, and it should always be considered a serious condition with a mortality of 60 per cent in the aged. Its presence is favored by intemperance, general ill health and impaired vitality of the apices of the lung. (Peter.)

Delirium is very frequently met with, in fact very few severe cases of acute pneumonia terminate without it. It varies very much in degree and character and is more frequently met with in apical than in basal pneumonia. (Trousseau.)

It may be due to the fever, "febrile delirium," or to some toxic substance, "toxic delirium," or to some complication, of which pericarditis is the most important, gangrene, purulent infiltration or abscess, and very frequently to the previous abuse of alcoholic stimulants. It is a prominent symptom in the young, the debilitated and the senile. In the mild cases, it may consist of mental disquietude at night. In other cases the mental disquietude persists during the day and is aggravated at night, as in the case of the weak and the aged (febrile delirium). In the asthenic type, the delirium is of a low, wandering character with hallucinations, the patient lying half asleep with partially closed eyes, completely oblivious of his environment, and constantly picking at the bedclothes or imaginary objects about him (carphologia or floccillation). In some severe cases the patient from the onset is in a state of stupor, in fact almost comatose (toxic delirium).

In another group of cases the delirium may be of an active type and closely resembles acute mania. This type is rare except in detected or silent tipplers, but it may be met with in the most abstemious. In drunkards, delirium tremens develops with all its activity and cannot be distinguished from ordinary tremens except for the fever. Such cases are usually fatal and the delirium bears no relation to the extent of the lung involvement, being sometimes most active and going on to a fatal termination

when the lung involvement is so slight as to give rise to no physical signs. (Osler.)

In exceptional cases the delirium may be so violent as to be mistaken for Bell's mania. The delirium may change its character and the most active form may pass, as the case gets worse, into the low, muttering type or asthenic form and the patient passes into a coma and expires.

Mental disquietude at night may develop for the first time, or when having disappeared may return again during convalescence (post febrile or exhaustion delirium).

Children, the aged and drunkards are usually delirious from the start.

In all cases gradually increasing delirium is a bad prognostic sign. Sleep is always more or less disturbed on account of pain, cough, breathlessness or delirium and can only be obtained by disturbed naps.

It frequently happens that the patient, without any apparent cause, cannot sleep. This is a condition indicative of great nervous irritability, which may be followed by profound depression and possibly collapse and death.

Hiccough (singultus) is a rare symptom and one of great gravity. It gives rise to great discomfort, pain, and prevents sleep. When present it means that we are dealing with a neurotic or alcoholic subject, or that the pneumonia is complicated with diaphragmatic pleurisy, pericarditis, mediastinitis, or uræmia. The hiccough may occur every few minutes or several times a minute for a day or two and may only cease when the patient is moribund.

Another nervous symptom is the development of herpes on or about the lips. These, herpes labialis, or facialis, consist of groups of vesicles on a more or less hyperæmic base, appearing from the third to the fifth day of the disease. The contents of the vesicles are at first serous but may become purulent. They later dry up and crust. The scab falls off without leaving a scar.

The herpes are regarded as a favorable sign. About 66.6 per cent. of the cases of pneumonia are complicated with herpes.

It has been estimated that the mortality in herpetic cases is 9.3 per cent, while in non-herpetic the death rate is 29.3 per cent. (Geissler.)

When herpes are met with in children, it means that we have to deal with a lobar and not a lobular pneumonia. Another sign often observed is the calor mordax of Addison, with the mahogany molar flush (the pneumonic facial spot), a deep vaso-motor flush which settles on one or the other cheek, due to a relaxation and dilatation of the arterioles of the cheek (pneumonic vaso-motor paresis).

Meteorism, acute tympanites (extreme flatulent distension of the intestines), is indicative of profound neuromuscular asthenia. It is a paralytic phenomenon, the muscular tone of the intestines being completely lost. The resulting distension gives rise to pain and to increased breathlessness and embarrassment of the heart from pressure on the diaphragm.

It is a very serious symptom, extremely difficult to relieve and invariably fatal.

The knee jerks in cases of acute pneumonia remain unaltered for the first day or two, but on the third or fourth day they are usually abolished and remain so until the tenth day; then they reappear, slightly increased for a day or two, when they return to normal by the end of the second week. The knee jerks stand in no relation to the crisis. The knee jerks are of some prognostic value; when they are abolished before the third day, the outlook is grave; when the knee jerks are present until the fifth day, recovery is the rule.

The knee jerks are glib in tuberculosis and unaffected in septic and non-pneumococcal pneumonia, except diphtheritic pneumonia. (Hughlings, Jackson, Barns.)

Subsultus tendinum is met with in severe asthenic pneumonia, also muscular tremors are common. These tremors may affect any part of the body when put in motion: the hands, lips, tongue, etc.

They cease during sleep and when the parts are at rest and are not necessarily associated with delirium. Similar tremors occur in alcoholic subjects, but in them they depend upon the drink.

Transient palsies, i. e., facial monoplegia, and even hemiplegia, have occurred. These palsies occur early and last only a few hours or a day or two, ending in recovery. They are probably toxic. (Lepine.)

They are usually met with in children and the aged. Transient disturbance of vision (photophobia), and occasionally ambliopia and aphasia have occurred (post epileptic aphasia).

Of the secondary infections, meningitis is very rare. It may occur during the attack or during convalescence. Osler has met with it eight times in one hundred cases, while West failed to find it once in one hundred consecutive cases. Meningitis was only met with once in ten years as a complication of pneumonia at St. Thomas's Hospital, London, Eng. (McKenzie's report of 1449 cases.)

In Osler's eight cases five of them occurred in association with infective endocarditis. The exudate is always purulent and the pus contains the pneumococcus in some cases alone, in others associated with other organisms.

Frequently meningitis is found post mortem without having been suspected during life.

Epidemic cerebro-spinal fever is frequently complicated with pneumonia. (30 per cent., Immerman.)

Hemiplegia is due to some local cause, thrombotic or embolic. Thrombotic hemiplegia in young persons may be due to a local infective endarteritis; in elderly people to atheromatous or angio-sclerotic condition of the vessels, which alone or associated with pneumonia may lead to thrombosis. Embolic hemiplegia is due to vegetative or septic emboli, as the result of a complicating infective endocarditis or an old mitral obstructive lesion. Hemorrhagic hemiplegia can only stand in an accidental relationship to pneumonia.

Toxic and apprehension neuroses often follow in the wake of a severe attack of pneumonia, especially when complicated. This often proves obstinate and leads to psychic manifestations, particularly in individuals with an inherited instability of the nervous system.

Pneumonia may be followed by an exhaustion psychosis. As a rule, the mental state improves, though months may be required for improvement. When mental deterioration persists, cerebral softening and degeneration result, due to obliteration of the cerebral vessels as the result of an infective endarteritis, giving rise to defective nutrition. (Kraepelin.)

Peripheral neuritis occasionally develops during convalescence, and in every respect resembles diphtheritic neuritis. It is toxic in origin and ends in complete recovery. Neuritis seems to occur in cases of pneumonia which follow a naso-pharyngeal infection in subjects who use mixed ale freely.

Dr. Batton has recorded a case of cerebral abscess occurring six months after acute pneumonia. The patient had been sick for some weeks following the attack with supposed empyæma. No aspiration or operation had been attempted. The abscess pus contained pneumo and staphylococcus.

Optic neuritis occurs in about 40 per cent. of the apical pneumonias. It may be mild or severe and occasionally may cause complete blindness. All the cases recover, so it may be regarded as toxic in origin.

DISCUSSION.

DR. HAROLD S. ARNOLD (New Haven): A question which presents itself is this: Are not some of the symptoms which we commonly ascribe to the action of the toxins upon the central nervous system in pneumonia, more often than we are in the habit of supposing, particularly in the fatal cases, the results of the actual invasion of the meninges by the pneumococcus and the consequent inflammatory reaction? Furthermore, is not pneumococcus meningitis more common than many observers think?

The fact which Dr. Lynch mentions and to which Liebermeister has recently called attention, namely, the frequency with which he has found suppurative inflammation of the meninges at autopsies upon pneumonia patients in whom, during life, no meningitic symptoms had been observed, is suggestive.

Pneumococcus meningitis is by no means a great rarity in hospital practice. This may be due in part to the habit some practitioners have, namely, of sending patients to a hospital when they are apparently moribund, but it is probably due to the fact that more cases of it are discovered by the laboratory methods so generally employed, cases which formerly were unrecorded.

I wish to emphasize the importance of lumbar puncture in all cases of pneumonia, where the symptoms in any way suggest meningitis, on the grounds, first, of diagnostic accuracy; second, of prognosis; and third, of therapy.

The yellowish green opalescent fluid is usually characteristic enough to render the diagnosis easy, even without the aid of the microscope to disclose the pus cells and pneumococci.

The prognosis of pneumococcic meningitis is generally conceded to have been worse than that of the dreaded epidemic cerebro-spinal meningitis even before the day when the serum began to lessen the mortality of the latter. The mortality of pneumococcic meningitis is generally given as 99 per cent. Obviously, we can give a better prognosis in cases in which pneumococci are absent from the spinal fluid.

Has lumbar puncture any curative effect? According to Rolly, thirty patients with pneumococci meningitis have been treated at the medical clinic at Leipsic during the last five years. Four of these thirty recovered.

Frequently lumbar puncture not only permitted differentiation, but seemed to have a direct therapeutic effect. In one of the four cases—a girl three years old—sixteen punctures were made and, in all, 660 cc. of fluid withdrawn. Rolly argues that lumbar puncture exerted its curative effect in two ways; first, by giving exit to swarms of pneumococci; and second, by causing an influx of blood bringing bactericidal reinforcement to the spot.

DR. JOHN C. LYNCH (Bridgeport): I do not know that I have anything further to offer, thank you. I should like to hear a more general discussion, because it is an interesting subject. My attention was first called to it when I was physician at the almshouse, on account of the number of people seized with attacks resembling uremia, and the post-mortem always showed pneumonia, while the brain examination was negative.

Responsibility of the Insane.

HENRY S. NOBLE, M.D., MIDDLETOWN.

The frequency with which insanity is alleged as a defense for crime in our country renders its medico-legal study a matter of more than passing interest. The notorious case of Harry Thaw, after engrossing the public attention for months, that of Captain Hains and his brother, as well as other similar ones where mental unsoundness has been alleged as the defense for crime committed, raise the question of responsibility, and are concerned in the matter of expert testimony. Moreover, in the majority of cases where the defendant has wealth or social prominence, it is almost a foregone conclusion that a corps of medical experts will appear both for and against him. This has occurred so frequently of late that it has cast opprobrium upon so-called expert testimony, and some courts have openly charged juries to dismiss it from their minds entirely in arriving at their verdict.

Shortly after the Thaw trial several bills and resolutions were introduced into the New York Legislature and medical societies, aimed against the use and abuse of expert testimony in murder trials where insanity is pleaded as a defense. The purpose of these was to do away with hypothetical questions and insanity experts as they are now used. One of these measures, that proposed by Senator Agnew, provides that, "Whenever a defendant shall be held by the Grand Jury for trial on an indictment for a felony, the defendant's attorneys, or the district attorney, may apply to any court in which the indictment is pending for an order committing the defendant to a state hospital for the insane for examination. The motion may be made by either side on three days notice to the other side, and shall be based upon the affidavits of two duly qualified examiners in lunacy that the defendant is, in their opinion, insane. If the judge is satisfied

that the interests of justice so require, he shall make the order committing the defendant to a state hospital for the insane for observation, for a period of not less than three nor more than six weeks. The physician in charge shall report to the court at the end of three weeks the results of his observations, and should the defendant be detained in the hospital for more than three weeks, a second report shall be made when he is returned from the hospital." It would certainly seem that by this procedure the defendant's mental condition and responsibility could be determined, and it would be upon this knowledge that the issue of the trial would be determined. Indeed, if the defendant was found to be insane and irresponsible, no trial would be necessary. A statute similar in its provisions is in successful operation in the state of Vermont. The American Neurological Association, undoubtedly influenced by public opinion on this question, passed at its annual meeting on May 13, 1911, the following resolutions:

"Resolved. 1. That the methods of legal procedure in trials involving neurological testimony are inefficient, tedious and expensive; they fail to utilize effectively expert knowledge and skill, and thus make it more difficult to secure justice. That whenever possible the medical witness should testify only after he has had an opportunity to make both a mental and physical examination of the person concerning whom litigation is raised; and that equal rights should be accorded the medical witnesses for both plaintiff and defendant in the examination of the person alleged to be ill or injured.

6. That we consider the hypothetical question as ordinarily presented to be unscientific, misleading and dangerous.

9. That a period of hospital or similar form of observation of persons whose nervous or mental conditions are mainly subjective, is the best method for securing impartial and accurate opinions; also that we advocate the enactment in every state of laws favoring such method.

10. That it is the sense of the Association that it is inadvisable and objectionable for any of its members to occupy the position of medical advisory counsel in open court, and at the same time act as expert witness in a medico-legal case."

At about the time of the Thaw trial one of the prominent law journals contained the following comments: "Every one will heartily assent to the proposition that expert testimony as now

used in our courts is something of a scandal. It is a luxury which only the rich can afford, and which gives little or no assistance to the jury in arriving at a verdict." The hypothetical questions addressed to the distinguished alienists in the Thaw trial contained more than thirty thousand words, and were carefully expurgated of all matter having a prejudicial bearing upon that side of the case responsible for its production. It, like all others of its class, closed with the perfunctory proposition, would you, assuming all the facts submitted to be true, consider such a person sane or insane. Now everyone knows that the answer is a foregone conclusion. It will be favorable to the side which prepared it, and the witness testifying is required to do so in reference to a hypothetical person, instead of the person on trial. Surely some practical method might be devised of getting the authoritative opinions of experts, when such opinions are needed, without this cumbrous mass of absurdities upon which any imaginable system would be an improvement.

The New York Bar Association has proposed to abolish insanity as a defense for crime, and submit to the jury the single question, "Did the accused commit the crime as alleged?" If he did not, he is innocent; if he did, he is guilty; and with the state of his mind at the time of committing the act, the jury has nothing to do. The point urged is that however legally right under existing legal concepts, it is sociologically wrong to find a man not guilty on the ground of insanity. An insane murderer ought not to forfeit his life, but he ought to forfeit his liberty. Why should he be acquitted on the ground of his insanity, and then be allowed to go at large on the ground of his sanity, which is exactly the attempt made in behalf of Thaw. A man having been proved a dangerous person, society must protect itself against a repetition of his criminal tendencies. Nor should it be permitted to introduce as a defense temporary insanity under the felicitous title of "brainstorm." It seems that there is a disposition to measure the responsibility of the insane in an inverse ratio to the gravity of the crime committed. For instance, there is no difficulty in regarding persons responsible for minor infractions of the law, and the question of insanity

as a defense is rarely raised; but let the crime be a capital one, murder for instance, and the effort is at once made to construct a defense of insanity, often upon very shadowy grounds. This may, in part, result from a hesitancy on the part of the community to apply capital punishment as the penalty for capital crimes.

The dicta of psychiatrists have not, therefore, the high standing and authority that are desirable, even though they may be the honest expressions of competent men. Whenever insanity is alleged as a defense for crime, the mental responsibility of the accused is generally referred to the medical profession. It is somewhat humiliating to note the diametrically opposing opinions expressed by apparently equally competent medical witnesses, who have supposedly enjoyed the same facilities for arriving at the truth. Such an issue is explainable upon any one of three grounds: incompetency, dishonesty, or misunderstanding, which may include the suppression of essential facts. Whichever it may be it results in the depressing spectacle of presumably disinterested members of a learned fraternity ranged on opposing sides of a medical question. It is little wonder that the legal profession regards expert testimony as of little account, the competent expert as a mercenary rascal, and the incompetent one fit to serve only as a laughing stock. Upon the latter little sympathy need be wasted. If conscious of his incompetency, he has no excuse for posing as an expert; if unconscious of his own deficiencies, perhaps a few experiences in court will open his eyes to his limitations. It is useless to deny that there are in the medical profession well-informed, competent experts who are dishonest—who will sell their abilities to what seems to them the best advantage, but they constitute but a small minority of the profession. What, then, is the basis of these differences of opinion among experts, which have brought the whole matter into disrepute, and in some states led even to the consideration of laws for doing away entirely with expert testimony as now obtained? Granting the honesty and competency of the insanity expert, I believe there is still a wide margin for honest difference of opinion, owing to the different standpoints from which the legal and medical professions look at mental disease. We must

recognize the existence of a legal and a medical insanity. Granting the existence of the former, irresponsibility follows as a natural corollary, but granting the existence of the latter, there may still exist a modified responsibility.

It is an admitted fact that the line between sanity and insanity cannot be sharply drawn. As we recede from the somewhat shadowy line of demarkation, or, as I might perhaps better term it, the debatable ground or border land between the two conditions, the difficulties grow less and less, until it would seem that two conscientious, well qualified experts ought to find little difficulty in agreeing upon the question of the responsibility of the accused. Furthermore, it is not always easy to differentiate between insanity and depravity, not only because of the frequent similarity of the two conditions, but also owing to the fact that they may co-exist in the same individual, and the insanity be the result of depravity, or apparent depravity the outcome of insanity.

Underlying the whole matter of irresponsibility for crime by reason of insanity is a misunderstanding between the legal and medical professions—a lack of common ground whereon they may meet with mutual understanding. There is a disagreement as to the nature of insanity as related to crime. Neither is able to furnish a definition of insanity that is wholly satisfactory, for no one can enlighten us as to the nature or quality of mind itself. The attitude of those who wish to vindicate the majesty of the law is that no insane person is responsible for his acts, indeed, in a strictly legal sense, there is no such thing as an insane criminal. Concede the insanity of the accused, and he is at once placed outside the ban of the law, and is no longer a subject for its punitive action.

An attitude somewhat in advance of that which has for many years been maintained by the courts is the more recent (1903) charge of an eminent jurist to this effect: "The most reliable and efficient test of responsibility where insanity is pleaded as a defense should be, 'Is the crime charged the product and direct result of the insanity alleged?' This," he states, "requires that the insanity shall first be proven, but does not maintain that the

establishment of insanity necessarily carries with it a condition of irresponsibility. If the alleged insanity is proven to be associated with a vicious nature; if the crime charged is the product and direct result of hatred or malevolence, or evil passions or wicked desires, then the act is vicious in its nature, and vice should never be vindicated simply because disease has given it undue prominence." (Wherry.)

There is a very prevalent notion abroad that every insane person is wholly irresponsible, and that never under any circumstances should an insane man be punished for his acts of wrongdoing. It is, indeed, this universal belief in immunity from punishment that constitutes the foundation for the plea of irresponsibility for crime on the ground of insanity. "That total and complete irresponsibility of the insane is the magnetic watchword that insure good care and kind treatment of those unfortunates confined in our institutions is undoubtedly true, and the theory in itself is a most excellent one when used in its proper sphere or strict relation," for, as Dr. Wherry states, "It alone has aroused the sympathy of all God's people for this most unfortunate class; it alone has broken the shackles from a thousand maniacs chained in dungeons; it alone has stretched out a charitable hand and protected the wards of the state, and insisted upon kind treatment, where violence and brutality formerly prevailed." As Dr. Punton has urged in a recent paper on the subject, "Admitting all this, and even more, it is, nevertheless, a false doctrine and cannot be substantiated by practical experience among the insane. For the good it has already done, and is still doing, it is well to allow its influence to reign supreme in institutions for the insane, but it should never be held in courts of law as the true and correct criterion or standard for justice in all cases of insanity, as it is contrary to all the facts and evidence furnished by clinical psychiatry." It is at this point that law and medicine come in conflict. The theory of total and complete irresponsibility of the insane corresponds to that form recognized by lawyers as legal insanity, in contradistinction to medical insanity. It cannot be denied that a man may be mentally unsound, and yet not necessarily irresponsible. A person under

the influence of alcohol is abnormal, yet the law holds him responsible for his criminal acts.

That insanity implies certain immunity from punishment, all will agree, but every alienist of wide experience recognizes that there are degrees of responsibility associated with insanity, and that the majority of the insane should be held responsible for many of their misdeeds. Nevertheless, I doubt if many alienists would have the hardihood to maintain in court that, notwithstanding the fact that a prisoner was insane, he was yet responsible, though perhaps to a modified degree, and should therefore be punished accordingly. Yet such an attitude would be in accord with clinical facts and experience. The principle of petty rewards and punishment is in operation in every hospital for the insane in the country, as well as in every family where children, that are not angels, are being reared and educated. Every medical officer in an institution for the care of the insane realizes that many of his patients often commit misdemeanors deliberately, wilfully, and with malice aforethought. Although knowing right from wrong, with full understanding of the nature, character and even consequences of their misdeeds, yet they continue to transgress. Hence, we find the insane subject to mild forms of punishment, according to the nature of their offences, such as not allowing them to attend the weekly entertainments on account of fighting or assaulting a fellow patient; or suspending the privilege of parole after an attempt to elope, or a violation of some of the conditions of their increased liberty; or, if turbulent and abusive, removal from the convalescent to a less attractive and desirable ward.

These and many other similar penalties are imposed upon the inmates of every well-managed institution, not simply to maintain discipline and induce efforts at self-control, but also as a penalty for misconduct. As a matter of fact, however, the withdrawal of the privilege is not permanent, but only temporary, and subject to the same construction as that which applies to the same man when he is sent to prison. There are, therefore, simply differences of degree and not of kind, and consequently equivalent to mild or severe forms of punishment. In order to prove that

the insane possess no little control over their conduct, Dr. Mercier mentions the fact that with those patients whom he allowed "pocket money," the prospect of having this stopped, restrained them from practices of mischievousness, destruction and other evil habits. Although the principle is loudly maintained that no insane person is responsible, and should, therefore, never be punished, when we come to actual practice we find that a pretty large percentage of the insane are quite responsible. They act from the same motives and are influenced by the same considerations as those who are supposed to be in full possession of all their mental faculties.

That some of the insane are wholly irresponsible for their misdeeds, and are justly entitled to complete immunity from all forms of punishment, all will agree. On the other hand, it cannot be successfully denied that a very large number, perhaps a majority of the insane, are, to some extent at least, responsible for their misconduct. In 1901 Dr. Richardson of the Government Hospital for the Insane delivered an address, in which he maintained that graduated responsibility of the insane before the law was not only advisable but necessary, and that judges and jurors, as well as legislators, should strive to vary the penalties imposed, not only to meet the degree of the criminal act, but also to fit the individual himself. Make the punishment fit the crime and the criminal as well. Dr. Mercier has formulated two propositions along the same line, which are as follows, viz: (1) The total immunity of some insane offenders for some acts, and (2) the mitigation of punishment in more or less degree for all crimes done by insane offenders. If the medical and legal professions could unite upon a common ground of this character, instead of groping for some one test of responsibility which should cover all cases, we should not only have taken a great step in advance, but also formulated a more just and equitable medico-legal standard for this class of offenders.

The practical importance of securing a consensus of medical opinion regarding these important questions is obvious, inasmuch as we have at present no absolute guide or standard of authority to which we can refer. Instead of trying to maintain that

insanity alone proves irresponsibility, we should endeavor to set forth what mental conditions should exonerate the insane offender from some or all punishment. For instance, a man who yields to the dictates of desire is vicious, whether he be insane or not; but a man who acts in response to the dictates of a diseased judgment is conscientious whether he be insane or not.

The insane may, therefore, be divided into two classes—those dominated by desire, and those dominated by diseased judgment. The former constitute the vicious insane, the latter the conscientious. The one is responsible, the other irresponsible. It has long been maintained that there is no legal test of insanity, yet this does not imply that there are no tests of responsibility unless we try to maintain that insanity and irresponsibility are synonymous terms. Each case must be decided on its own merits, and if the investigation be pursued carefully and without bias, it should not be difficult to determine both the fact and degree of responsibility. Probably the simple ruling of Chief Justice Doe in the famous New Hampshire case of the State versus Pike attracted wider attention, and for a long time was believed not to have been excelled in its fidelity to facts, by any tribunal in the world. He claims that, "The basic facts are that insanity is a mental disease; the product of mental disease cannot be a crime; tests of mental disease are matters of fact; and whether the defendant has a disease, and whether his act is the product of that disease, are questions of fact for the jury to consider."

If it were possible, the legal fraternity would, no doubt, be well pleased to have at hand a collection of cases or decisions where insane persons presenting such and such mental symptoms were declared irresponsible for their crime. Then whenever any new case came up for trial in which insanity was alleged as a defense, it could be examined and the fact ascertained whether it fell into the category of decided cases. It will, however, be seen at once that this plan is not feasible. While it may be possible to extract sound law from reports and court decisions, psychiatry is not created in this way. It seems probable, therefore, that we shall have to go on considering each case by itself and endeavoring to decide whether the act complained of is the

direct effect and consequence of disease or not. It will be a step in advance when graduated responsibility of the insane is recognized in law as it is in medicine, and penalties regulated in accordance with that principle.

DISCUSSION.

DR. WHITEFIELD N. THOMPSON (Hartford): I am conscious that I can add little to what Dr. Noble has embodied in his paper. He has taken the pains to present a subject that is of very great importance, yet is pretty much ignored in practical application, notwithstanding the fact that it has been urged upon the attention of medico-legal authorities for several years.

It seems to be a useless, thankless task to keep the subject alive; but the truth of it all, in the light of accumulating knowledge and experience, is so obvious that recognition of the facts cannot be delayed indefinitely.

Obedience to tradition, conservatism and a more or less general belief that a large percentage of offenders against the law are in some way abnormal, stand as stumbling blocks in the way of due consideration of the varying degrees of responsibility of those suffering from some mental disorder. There seems to be no valid argument against partial responsibility in certain classes of the insane, and in others mentally defective; the rub comes in obtaining recognition of the fact when victims of such states come into conflict with the law.

It is trite to observe that responsibility is a quality that is gained from environment; that it comes in different degrees to every one, but has an average in those who are able to live within the limits prescribed by customs and laws. Its evolution is coincident with that, except under extraordinary conditions, its decadence will be in like order. The corollary is that gradual mental deterioration is marked by partial, though not full loss of responsibility. In other words, a certain number of others, by reason of the character and severity of their malady, may be irresponsible from the outset.

Dr. Stearns, in his presidential address before this Society, made use of an illustration of physical infirmity by way of comparison. He said: "There are as many degrees of mental soundness as there are of lameness; and insanity, in its widest significance, cannot be defined any more clearly than can the term lameness. The motion of the arm may be slightly impaired, or it may be almost lost. Movement of it may be attended with little pain, or with excruciating pain; or with any degree of pain intermediate between these extremes. In either case the arm may be said to be lame. In like manner, the mind may be little impaired, much impaired, or profoundly deranged; and the inquiry

whether a person is insane, when made for the purpose of determining his responsibility, is as unscientific and devoid of point as would be the inquiry whether the arm of anyone is lame, when made for the purpose of deciding whether its owner can elevate it to a horizontal position."

It is, as Dr. Noble has pointed out, important to take into account an individual's normal tendency; and whether he has yielded to the dictates of desire, or has acted in good faith, in obedience to the directions of a diseased judgment. It is manifestly impossible to formulate any standard criteria for judging individual cases; but the methods now in use in the courts are cumbersome, archaic, and altogether inadequate.

What is now witnessed in the courts, when a plea of insanity is set up, is a threshing out, in a way so long in vogue, of the old question of insanity and irresponsibility or full responsibility. On what ridiculous grounds a decision is sometimes reached, is indicated in an alleged report from a Canadian court, where the justice obtained from the expert the statement that the prisoner, although insane, knew that the act was against the law. The justice charged the jury thus: "If a man knows what he is doing is against the law, no matter how insane he may be, it is the mandate of the law and your duty to hang him. No matter if the record does get a shock now and then." If this is the mandate of the law, there is room for a very considerable advance. Whatever the object of punishment may be held to be, it may be safely said that if society permits an alleged infraction of the law by a person of unsound mind, society is bound to protect the offender as well as itself.

I heartily coincide with the opinions expressed with reference to the manner of dealing with expert testimony and that concerning the hypothetical question. If the latter ever had any use other than to bring testimony into disrepute and begot the case at issue, it has been discarded or lost.

DR. JAMES M. KENISTON (Middletown): The subject of responsibility of the insane has been so clearly and concisely presented by Dr. Noble that it is difficult to say anything more, except in praise. Let me quote one very illuminating paragraph: "A man who yields to the dictates of desire is *vicious*, whether he be insane or not. The insane, therefore, may be divided into two classes: those dominated by desire, and those dominated by diseased judgment. The *former* constitute the vicious insane; the latter, a man who acts in response to the dictates of a diseased judgment, is conscientious, whether he be insane or not. The one is responsible; the other, irresponsible."

It seems to me that if doctors and lawyers could get together, they might solve this whole problem in a common-sense, practical way. Each might have to abandon some preconceived opinions and prejudices, and, above all, precedents. In fact, it would be well to discard altogether

all past practices and conceptions, and begin anew. Then the lawyer would learn that an insane man is a sick man—just as much as if he had diphtheria or a cancer; and, being a sick man, he should be treated as such. Further, in criminal or civil suits, the doctor, the expert, should be allowed to examine the person undergoing trial, and then tell the jury exactly what he found—in other words, the facts. Then, if, in addition, he expresses an opinion, by request, that opinion is itself a fact, and a very important one. His opinion would be or should be based not alone on the case before him, but should be based on the embodiment of his previous experience and all other acquired knowledge.

Something similar to this is bound to come in time, as present methods often are ludicrously inchoate and inadequate. Why should twelve men, no one of whom knows much about disease, decide a question of disease by voting? A friend of mine arose at two A. M. and shot himself through the head, dying instantly. The autopsy revealed the existence of typhoid in the third week—a “walking case.” He had been attending to business all along. Suppose that in his sudden delirium he had killed his wife, instead of himself!

This brings me to another important point: We are trying to abolish the use of the word “insanity,” just as we have the word “consumption.” We now recognize different forms of mental disease; but we also know that in every one of these forms there is some bodily affection, both mind and body suffering together, though in different degrees. We admit that our present classification is not perfect; but it is a wonderful advance upon what we had twenty, and even ten, years ago.

We can state truly that patients suffering from the end stages of general paresis (I wish to be extremely conservative); from the pronounced forms of manic-depressive, the stages of extreme manic excitement, or depression and retardation; from some phases of epilepsy; from senile dementia; and from the terminal processes of dementia praecox, are irresponsible. The marked hallucinosis exhibited in the infectious and exhaustion psychoses also presupposes irresponsibility. As for mental disease due to alcohol or other drug habits, some difference of opinion may be had. What I wish to emphasize is that the skilled and experienced doctor must, by virtue of his skill and experience, be the best man to decide the question, laws and customs and precedents notwithstanding.

As a co-worker with the writer I may venture to call your attention to the fact that on May 11, 1912, there were 860 patients at the Connecticut Hospital for the Insane at work—491 men and 369 women. This is 34 per cent. of the total number of patients resident at the hospital on that day! Their work involved the use of judgment, as well as some skill. It takes some skill to dig a ditch. It also showed that they possessed at least some feeling of responsibility—possibly not

all, but the larger number. The following table shows exactly what they did:

Total number of patients at the Connecticut Hospital for the Insane:

Total number of men, 1200; total number of women, 1328.

MEN, NO. BUSY.		WOMEN, NO. BUSY.	
Farm	30	.....	00
Stables	17	.....	00
Grounds	89	.....	00
Workshops	22	.....	00
Furnaces	14	.....	00
Bakery	6	.....	00
Laundry	23	.....	24
Kitchen	23	.....	4
Dining Room	39	.....	25
Ward	186	.....	181
Center	10	.....	6
Basket, Brass	18	.....	35
Sewing-Room	00	.....	40
Handiwork on Ward	14	.....	54
	<hr/> 491		<hr/> 369

Finally, while we know that there are a few dishonest and avaricious medical experts, and that there are a few shysters among the lawyers; we, and not we alone, but the entire community, know that we can trust the earnest and faithful doctors and the honorable and loyal lawyers—that large body of men to whom can be safely entrusted its most vital interests—with a feeling of absolute confidence and security.

DR. HENRY S. NOBLE (Middletown): I do not know, Mr. Chairman, that I have anything further to add. I simply want to emphasize the point that insane people are not all necessarily irresponsible for the acts that they commit; and that there is in one or two states already a plan in practice for discovering by actual observation whether or not the person is guilty of the crime.

DR. NATHANIEL E. WORDIN (Bridgeport): I move that this paper of Dr. Noble's be referred to the House of Delegates for further consideration.

The motion was seconded.

THE PRESIDENT: Are there any remarks on the motion? If not, all those in favor will signify it by saying "Aye"; contrary, "No." It is a vote.

Experimental Nephritis and its Clinical Significance.

MAX R. SMIRNOW, M.D., NEW HAVEN.

The study of nephritis offers one of the most complicating and obscure problems in pathology. A number of reasons may be advanced to account for this:—In the first place, nephritis is rarely found in the human being without certain correlated lesions of other organs, as the heart, blood vessels, or liver, and hence cannot be studied as a distinct entity. Again, it is difficult to establish a histological and functional normal which precludes the possibility of drawing a sharp line between the normal and the pathological histology and physiology. Further, we find the direct etiological factor or factors, in most cases, are still unknown, and their mode of action particularly wanting.

The modern more generally accepted meaning of the term nephritis or Bright's disease is a non-specific, non-purulent form of inflammation of the kidney.

Bright, in 1827, basing his observations and studies on the known facts, at that time, concerning edema, ascites, albuminuria, etc., collected and grouped many of these cases with certain diseases of the kidney or liver. He was first to draw attention to the relationship between edema and lesions in the kidneys. He classified the forms of nephritis into three types; those we would now recognize as acute diffuse nephritis, chronic parenchymatous nephritis and secondary contracted kidney. These he believed to have definite relations to one another, claiming that the first and second forms always advanced to the severer phase,—that of contraction. He considered nephritis due to change in the circulation of the kidneys, brought about by influences from the skin and stomach.

Since his day, both the interpretation and classification of the different forms of nephritis have varied considerably. Of the more important controversies, we may mention that of Virchow,

in 1852, who regarded parenchymatous nephritis essentially due to disturbances in nutrition of the cells, and believed that the interstitial changes were secondary, as a result and not a part of the process. This view is held by Aschoff even at the present time.

Klebs later called attention to a special type of nephritis, the glomerulo-nephritis.

This was also noted by Ribbert, who claimed it to be the incipient lesion of all cases of Bright's disease, thus placing the direct cause of nephritis to vascular changes.

In 1879, Weigart took a stand virtually opposite to that of Virchow in the essential factors and held that the parenchymatous change was degenerative in character and not a disturbance in nutrition, and was due to some sort of an irritant. The interstitial change he also regarded as the result and not a part of the inflammatory condition.

Orth recognizes three forms of nephritis, the parenchymatous, interstitial and glomerulo-nephritis, depending on the predominating changes. His classification has more of a descriptive than pathogenetic meaning.

This matter of classification has been adhered to, and considerably amplified by Oertel in his recent publication.

To further mention the views of the many pathologists and clinicians on the types of nephritis and their classification, would be of no other purpose than to show the numerous differences and contradictions there existed and still exists.

Similar differences of opinion exist in the normal and pathological physiology of the kidney. Without going into the details of these matters, the writer desires to call your attention only to those points in the physiology of the kidney which will assist in the proper interpretation of the experimental work to be mentioned later.

The glomeruli and tubules are both the secreting and excreting organs of the kidneys, the latter acting also as conduits. The glomeruli appear to act in part as filters, and in part as selective secreting organs, allowing the passage of water and crystalline substances through it. The tubules have a similar

function; they excrete a certain amount of water, but by no means compared to the quantity excreted by the glomeruli and the non-crystalline substances, which may or may not be altered in passage through its epithelium. The tubules, particularly the convoluted portions of Henle's loop, also have selective attributes. Hence, the glomerulus, made up as it is of a mass of thin-walled capillaries covered by a single layer of flat epithelial cells, is quite adapted for the passage of easily filtrable substances or such that require the least amount of cellular activity for their excretion. The tubules, particularly the convoluted portions, on the other hand, secrete and excrete substances that cannot easily make their exit, or must first be transformed by their cell activities. This is assisted by the peculiar character of the blood supply, which will be referred to later.

The rapidity with which the water will pass through the glomerulus depends upon two factors, namely, the pressure and rate of flow of the blood through the glomerular tuft. Increase the pressure or rate of flow, or both, and the amount of fluid excreted is increased; diminish the pressure or rate of flow, and the amount of fluid is decreased. The blood vessels of the glomerular tuft are in the form of a network of capillaries, given off directly from the straight interlobular arteries which convey the blood with practically the same pressure as that in the renal artery. After going through the glomerular tuft, these capillaries gather into an efferent vessel, but immediately spread out into a second capillary network, the so-called stellate plexus that surrounds the convoluted portions of Henle's loop. Here the rate of flow and pressure are both lowered, and the blood content is much more concentrated on account of the loss of a great deal of its fluid portion while in transit through the glomerular tuft. The lowered pressure, the slow rate of flow and the greater concentration, all tend to assist the convoluted tubules in their excretory and selective secretory activities.

The function of the kidney as a whole is that of an excretory organ. Its efficiency is dependent on the integrity of its component parts, and the maintenance of their proper functional inter-relationship. Consequently injury to any of its histological ele-

ments tends to disturb the proper function for the time being, and if this injury is continued over a period of time, there arise permanent alterations. This more or less permanent change in the histology and physiology may be due to numerous factors, but only when it is due to non-specific and non-suppurative agents should it be termed true nephritis or Bright's disease.

This brings us to the consideration of the etiology of nephritis.

Heredity plays a part in the etiology of Bright's disease only to the extent of a predisposing factor, in similar manner as in other organic affections such as cardiac disease, tumors, etc. Age, sex, occupation, and the existence of other diseases may also be regarded as predisposing causes.

PHYSICAL CAUSES.

Cold may either be a predisposing factor to nephritis as it is to tonsilitis or pneumonia, or it may aggravate an existing moderate nephritis to a severer form. This may be brought about by interfering with the proper elimination of waste products by the skin and so throwing more work upon the kidneys, or by constricting the cutaneous vessels and causing a congestion of the kidneys. Increased number of cases of nephritis in the colder climates has been observed by Eichhorst, Sounby and Frerichs. Experimental production of nephritis by means of cold was reported by Siegelo in the *Deutch. Med. Woch.*

MECHANICAL CAUSES.

Pressure on the kidney itself, the ureter or blood vessels, by tumors, adhesions, etc., may give rise to nephritis through interference with the vascular supply of the organ or its function.

DISTURBANCES IN OTHER EXCRETORY ORGANS.

Injury to large areas of the skin, as in extensive burns, the various erythemata, ichthyosis, etc., throws additional work upon the kidneys. In such conditions, two factors exert their influences—the extra amount of work due to the inactivity of the skin, and also the toxins produced by the lesions.

Disturbances of the metabolic and excretory activities of the liver have a similar tendency to burden the kidney with work not normally done by it. Substances quite easily taken care of by the liver may act deleteriously on the parenchyma of the kidney, and possibly aid in the production of nephritis. Besides this, permanent injury to the liver, as cirrhosis, has an indirect influence on the kidney through the changes in circulation.

DISTURBANCES IN THE CIRCULATION.

The advanced forms of nephritis are seldom seen without some changes in the circulatory system. There exists a remarkable correlation between the heart, blood-vessels and kidneys, so that whenever one of these is affected for a period of time, the other two will show more or less extensive lesions. To illustrate, in hypertrophy of the heart with high blood pressure, we very frequently find thickened walls in the blood vessels both of the general circulation and the cortex of the kidney. This thickening is the evidence of an increased functional activity. On account of the greater contraction of the cortical vessels and also to an obliterative endarteritis which follows, the glomeruli become hyaline and finally fibrous. In consequence of closing off of the circulation to the glomeruli, the circulation of the stellate plexuses also cease, resulting in atrophy of the tubules followed by connective tissue replacement.

We can also trace the effects in the other direction, from an initial injury to the kidney upon the blood-vessels and heart.

HAEMATOGENIC ORIGIN OF NEPHRITIS.

By far the greater number of cases of nephritis are produced by some irritant that reaches it through the blood. Substances more or less toxic reach the kidneys constantly and are excreted as such or changed by its epithelium. That the kidney is not affected more often is perhaps due to some protective mechanism as yet not discovered. It is only when these substances produce a constant irritation over a period of time that they give rise to degenerative and inflammatory reactions that culminate in a nephritis.

These substances may be products of micro-organisms, exogenous chemical toxins, and endogenous toxins absorbed from the gastro-intestinal tract or products of faulty metabolism.

ACUTE INFECTIONS.

Albumin and frequently casts are found in almost all febrile conditions. This so-called febrile albuminuria bears no relation to the possible existence of a true nephritis, as can be readily seen in cases of pneumonia, in which disease albumin and casts are an almost constant finding, whereas true nephritis is rather rare. Again, in malaria and typhoid fever, albumin and casts are of frequent occurrence; and though nephritis may occur in 3 to 4 per cent. of the former disease, it is very rare in the latter. Bartels has reported but two cases of true nephritis in 1,000 cases of typhoid.

Nephritis is found, however, with greater or less frequency in almost all of the infectious diseases, particularly diphtheria, smallpox, scarlet fever, measles, and tuberculosis.

The severity of the infection does not determine the onset or the grade of nephritis produced. The mildest cases of scarlet fever are often forerunners of severe and even fatal acute parenchymatous nephritis.

The fact that a nephritis may coexist with or follow directly upon an acute infectious disease, does not necessarily indicate that that particular organism or its toxins are the direct cause of the complication. These may only prepare the way for some other irritant, which, when once gaining hold, is more constant in its production of the disease. It is almost impossible at present to weigh the respective merits of one or the other side of the argument, but it is safe at least to assume that, along with the micro-organisms and their toxins, other deleterious substances or factors must be considered. I refer here in particular to disturbed metabolism and the possible absorption of toxins from the intestines due to imperfect alimentation.

There is a great deal of evidence both from the clinical and experimental aspects that in certain forms of infectious diseases there is more or less of a selective action on the part of the

irritant. Thus, in scarlet fever, the toxic agent usually selects the glomeruli. In diphtheria, on the other hand, the process is more diffuse in character; first involving the glomeruli but shortly producing acute degenerative changes in the tubules, with particular injury to the convoluted tubules. This form of nephritis has been shown experimentally with the use of diphtheritic toxin, by Roux and Yersin in 1888, and since then by a number of investigators including Lyon, Pearce and others. The lesion as described by Lyon shows evidence of an intense irritation in the glomeruli with acute exudate, hyalin thrombi, and haemorrhage, and an extensive tubular degeneration. Pernici and Scagliosis produced glomerulo-nephritis with other bacteria or their culture filtrates including staphylococcus pyogenes aureus, *B. pyocyaneus*, *B. prodigiosis* and *B. anthracis*.

Of the exogenous toxins there is so much given in all texts and medical journals that it is hardly proper for me to speak of them here. All of the heavy metals if administered in single large doses or in small quantities for a long time, give rise to a parenchymatous or interstitial form of nephritis. Many of these substances have been used in experimentation on animals. Investigators have repeatedly shown that bichloride of mercury, potassium chromate or uranium nitrate when administered in a single dose give rise to a severer type of tubular degeneration; but, when given in small doses for a long time, a productive or interstitial nephritis is produced. It was further shown that arsenic, cantharidin, snake venom and nephrotoxic serum are essentially vascular irritants and produce, primarily, glomerular changes which are usually accompanied by parenchymatous degeneration.

But few of the many experiments carried out will here be mentioned. Webber has shown intense tubular nephritis by the use of chromium salts. The convoluted tubules were particularly affected, but the glomeruli remained intact. Hellin and Spiro showed that there was polyuria in the early stages of this poisoning, which diminished as the lesion became more advanced. Caffein and other diuretics would stimulate more active secretion, and the administration of phloridzin would cause polyuria and

glycosuria. Albumin and casts were abundant in the urine of these animals.

Bichloride of mercury and uranium nitrate act in a similar manner. With the use of uranium nitrate, Christian has described the presence of many round hyaline bodies in the glomeruli, the interpretation of which he would not venture.

Cantharidin was used by Schlayer and Hedinger to show typical vascular changes in the kidney. In the early stages of the poisoning there is no polyuria, and stimulation with adrenalin has but little effect. Later the urine becomes diminished, of a higher specific gravity, and contains albumin, casts and red blood cells. Phloridzin does not produce diuresis or glycosuria, and other diuretics produce little or no effect, indicating severe vascular and glomerular changes. Microscopically, these kidneys show but very slight effect on the tubules; the glomeruli are swollen, very cellular, some are congested, and the glomerular spaces contain quantities of granular material and desquamated cells.

Experiments with diphtheria toxin shows it to be a tubular irritant at first, but later to give rise to intense vascular changes.

Passler and Heinke have demonstrated the effect of destruction of large portions of kidney substance. They removed large portions of the kidneys in dogs, allowing the animals to live for several weeks thereafter. They found in these cases evidence of hypertrophy of the left heart, increased blood pressure, and a polyuria with low specific gravity, conditions similar to those seen in man, in extensive kidney destruction.

Pearce has shown that in experimental nephritis, by the use of chromium salts, there is a substance produced which, when injected into normal animals, causes a rise in blood pressure; and when uranium nitrate is used the serum obtained causes a decided drop in the pressure. This is very suggestive, that in nephritis there are certain pressor substances produced that may affect the circulation, which fact has some clinical significance. He has also been able to confirm the work of Lindemann and Bierry that uranium nitrate and potassium chromate nephritis in the dog give rise to a substance which is nephrotoxic in character and which, when injected into normal dogs, produces

albuminuria and casts. In rabbits these experiments were entirely negative.

Injections of the salts of lead by Ophuls, and feeding experiments, using white lead, by Charcot and Gombault, were shown to produce marked atrophy of the kidney parenchyma and the formation of dense fibrous tissue similar to that seen in man in chronic plumbism.

It is interesting to note that in feeding experiments, using lead acetate, there is no nephritis produced. This would indicate that the salt, if absorbed at all, is changed to a non-injurious form and is excreted by the kidney. This change occurs most likely in the passage of the salt through the intestinal epithelium, or in the liver, or both. The fact that lead acetate when injected into these animals intraperitoneally gives rise to a typical productive nephritis would emphasize the above.

From a clinical standpoint we can say that alcohol at least influences the production of nephritis. Its status as an etiological factor is still undecided. Chloroform is most likely a causative agent. Local applications of certain drugs, as balsam of Peru, have a decided influence or may even be the direct cause of Bright's disease. Gassmann reported at least six cases of acute nephritis due to the local use of balsam of Peru.

Autointoxication or intestinal absorption as a possible etiological factor of Bright's disease is discussed to a greater or less extent in most text-books on medicine. Experimental proof, however, has been lacking.

Habitual constipation exerting an influence upon the kidneys with consequent nephritis has been suggested by Kobler, Ebstein and Boas independently, who have found slight albuminuria and cylindruria in some of these cases. Their findings may be interpreted, however, as manifestations of a coprogenous albuminuria and not a true nephritis. J. B. Herrick, in Osler's *Modern Medicine*, says, "It does not seem a rash assumption regarding many cases of chronic nephritis of otherwise obscure origin to look upon digestive disturbances as the etiological factor. Errors in diet and digestive functions faultily performed may easily be regarded, if long continued, as leading to chronic

toxæmias, with resulting renal changes. In some instances bacterial growth in the bowel may be excessive and toxins increased in quantity. Or we may conceive some protective chemical process in the bowel or liver, as being deficient under pathological conditions, and a toxin that in health is rendered harmless being left free to be absorbed and in this way reach the kidney and induce inflammation."

George Johnson believed that the absorption of products of faulty digestion and their subsequent elimination by the kidney, if long continued, produce degenerative changes.

Harvey has been able to produce definite interstitial kidney lesions in rabbits by the use of parahydroxyphenylethylamine. This substance is one of the bases found in decomposing meat, and may, under certain conditions, be found in excessive amounts in the intestinal tract of man.

Numerous products of intestinal putrefaction are at all times found in the lower portions of the alimentary tract of man. Of these, indol is found in small quantities even under normal conditions. When in excess it is absorbed by the intestinal epithelium, where it is oxidized to indoxyl and carried to the liver. Here it is changed to a sulphate compound or indican and thence sent to the kidney for excretion. It is obvious, then, that injury or disturbances in the proper metabolic activities of the intestinal epithelium or the liver cells, will permit the indol to reach the kidneys as such, or in an imperfectly oxidized state, and act in an injurious manner. This has been tried out in our laboratories by intraperitoneal injections into two rabbits of filtered cultures of the *Sp. cholerae*, rich in indol. The kidneys of both of these animals showed a high grade of parenchymatous degeneration.

L. F. Bishop recently called attention to the fact that he found indicanuria in a majority of cases of arterio-sclerosis, or as he terms it "cardiovascular" disease. He believes auto-intoxication to be the etiological factor of this symptom complex which usually terminates in nephritis.

Herter has shown that the bacterial content of the bowel is such that, up to the age of twenty, there is but little opportunity

for putrefaction under normal conditions; beyond that age, however, and the older the individual, the more opportunity for putrefactive changes and the greater amount of toxins are produced. This phenomenon he attributes to the continual changes of bacterial flora with increasing preponderance of the putrefactive bacteria. He believes that the absorption of these toxins not only gives rise to a certain train of nervous disturbances and anaemia, but also to changes in parenchyma cells.

Experimental coprostasis with the appearance of albumin and casts in the urine has recently been reported by Wallerstein. These animals lived but a few days, and their kidneys showed acute parenchymatous degeneration.

About three years ago Prof. C. J. Bartlett and myself undertook the study of experimental nephritis in rabbits, both from the etiological and pathological standpoints. We believed that intestinal absorption of some abnormal constituent, or an excess of a substance normally present, might induce an interstitial inflammation.

After studying a number of normal rabbit kidneys and also the acute changes produced by *B. coli* and uranium nitrate, to act as controls, we employed a watery extract of human feces from a case of chronic interstitial nephritis. The extract, after sterilization by passage through a Berkfeldt filter, was injected intraperitoneally into two rabbits, over a period of forty and one hundred and forty-one days respectively. The kidneys of both rabbits showed a marked degree of degeneration but gave no evidence of fibrous increase.

It then occurred to us that human feces extract with its contained deleterious substances may have no effect upon rabbit kidneys, and that in order to simulate conditions as near as possible to absorption from the intestinal tract in this animal, it was necessary to make use of an extract of rabbit feces. We thereupon followed up our work with a fair degree of success by using an extract of normal rabbit feces, similarly sterilized by filtration. The extract used was made in the following manner: The feces were obtained from the caecum of normal rabbits immediately after death and mixed thoroughly with a quantity of water or

salt solution, strained of its more solid portions and then passed through a Berkfeldt filter. The potency or strength of this filtrate was judged according to the apparent concentration as seen by the color, which however was by no means an exact criterion. Subsequently the effects of its injections on the animals determined the amount to be used. The injections were all given intraperitoneally, 2-10 cc. at intervals of two to five days, and over periods varying from one to one hundred and sixty days.

The results obtained in two series of animals, a total of thirty-four rabbits, will here be presented in a very general way.

These animals may be divided into two groups: the first, a group of 13 rabbits comprising those from one to twenty-two days, and the second, 21 animals ranging from forty to one hundred and sixty days under experimentation. Of the first group, only two animals showed any interstitial process. One, an eight-day rabbit, showed what may be interpreted as the earliest evidence of productive change, and the other, a seventeen-day rabbit, showed a moderate degree of interstitial increase, corresponding to the lesions obtained in animals under much longer observation. The kidneys of the remaining eleven rabbits gave evidence of acute parenchymatous change only. This was seen as a moderate or extensive degeneration, particularly involving the convoluted tubules.

Of the second group, animals under experimentation for forty days or over, 16 out of 21 showed a greater or less amount of interstitial change. Inasmuch as the minute microscopical picture of these animals will soon be published, it will not be taken up here, but a composite view of the findings will be of interest, it being understood, however, that there exists certain variations in the kidneys of each animal if taken separately.

Macroscopically, the kidneys of these animals did not vary markedly from normal. The capsule stripped easily, leaving a smooth surface. Pitting was observed occasionally. Cut surface in few instances showed a narrower cortex, the markings were always distinct and the color most always normal or somewhat congested.

Microscopically, these kidneys are strikingly similar to that of an interstitial nephritis as seen in the human being. Here and there from the surface can be seen bands of cellular new formed connective tissue extending into the substance of the kidney. The surface of the kidneys frequently show depressions where these areas of fibrous tissue are more developed. The glomeruli were almost entirely free from change. An occasional one showed a very slight amount of granular exudate, or swelling and slight proliferation of the epithelium covering the tuft or lining Bowman's capsule. A partially or entirely replaced glomerulus by connective tissue was but occasionally seen.

Degenerative changes in the parenchyma, though present, were not of a conspicuous character, probably because the injections of the feces extract were discontinued for from two to four weeks before killing the animals, allowing all acute changes to disappear. The tubules contained in the areas of the new formed connective tissue were either compressed or dilated, and in some instances contained hyaline casts. Casts were more numerous in the larger collecting tubules, of the pyramids than in the cortex.

The blood vessels of these kidneys were also somewhat altered. The endothelial lining of the intertubular capillaries appeared to be swollen and extend into the lumen. There was evidence of proliferation and even extension of these cells into the surrounding tissue. This was not so evident in the capillaries of the glomerular tufts. Narrow strands of new formed connective tissue were also seen running parallel to some of the blood vessels both in the cortex and medulla. Few of the remaining seven animals of this group showed small subcapsular areas of fibrous increase, but all of them showed some parenchymatous degeneration.

It is obvious that in our use of feces extract we were dealing with a complex mixture, containing such substances as bile, various products of digestion, bacterial growth, intestinal fermentation, and possibly putrefaction. We decided to experiment with some of these substances separately in order to determine their respective relations to the production of an interstitial nephritis.

The only substance of which a preliminary report may be given at the present time is rabbit bile.

The bile was obtained directly from the gall bladder of normal rabbits, immediately after death, made up into the solutions to be used and sterilized. There were in all eleven animals used. The first received $\frac{1}{2}$ cc. of pure bile for a period of 72 days; the second, 1 cc. of pure bile for 13 days; the third and fourth 1 cc. of a 2 per cent. solution of bile for 60 and 74 days respectively; and the remainder 1 cc. of 5 per cent. solution of bile for 35 to 228 days. The injections were in all instances given intraperitoneally.

Of these animals the thirteen-day rabbit showed an extensive acute parenchymatous degeneration. All of the remaining rabbits showed similar lesions as already described, namely, a more or less marked interstitial nephritis. The new formed connective tissue was in instances much more extensive than those seen in the use of rabbit feces extract. Changes in the glomeruli were also more in evidence, one animal showing numerous tufts undergoing hyaline degeneration, and another, many replaced glomeruli.

Another interesting histological finding is the large amount of pigment deposited in the spleen. This was seen in the majority of the feces and bile rabbits, and indicates a destruction of the red blood corpuscles of the animal, which was evidenced by a moderate grade of anaemia. It is a known fact that bile acts as a hemolytic substance when injected into animals.

The urine was not studied systematically, but of the numerous specimens taken an occasional one showed traces or small amounts of albumin. Hyaline and granular casts were more frequently found, and leucocytes were almost always in evidence.

An interesting clinical fact was also observed, namely, a secondary anaemia. A drop from 20 to 30 per cent. in haemoglobin during the course of experimentation was common. The erythrocytes were decreased from 5 to $5\frac{1}{2}$ millions to $2\frac{1}{2}$ to $4\frac{1}{2}$ millions. The leucocytes varied considerably, but were usually much higher than in normal animals. A mild degree of poikilocytosis was seen, but no nucleated reds. The differential count showed an

increase of eosinophiles in particular. This anaemia was transitory, disappearing as a rule with the discontinuance of the injections.

SUMMARY AND CONCLUSIONS.

It may be well to summarize in a very general way the clinical and experimental observations concerning the hematogenic origin of nephritis.

1. Nephritis may be produced by a variety of substances that reach the kidney for excretion.

2. Substances like mercury, lead, and other heavy metals, bacteria or their toxins, certain protein toxins, drugs, etc., have been used experimentally, producing parenchymatous nephritis, glomerulo-nephritis or interstitial nephritis.

3. From clinical observations many writers suggest intestinal absorption as a possible etiological factor for nephritis.

4. It has also been suggested that disturbed metabolism, particularly that derived from disturbances of liver function, may induce nephritis.

5. Our experiments show that rabbit feces extract and rabbit bile produce in the rabbit both a parenchymatous and interstitial nephritis, depending on the length of time the experiments are carried on.

6. These experiments suggest that either the intestinal or liver epithelium plays an important part in the changing of substances absorbed from the intestinal tract, and which are to be excreted by the kidneys.

7. In these experiments a secondary anaemia was a frequently accompanying manifestation.

Absolute proof of similar action of bile and other substances absorbed from the intestine in man is still wanting, but its inference from our experiments may be justifiable.

DISCUSSION.

DR. GEORGE BLUMER (New Haven): *Mr. Chairman and members of the Society:* There have been a good many attempts, of course, to ascribe not only nephritis but a variety of other clinical manifestations to an intestinal auto-intoxication, and I take it that this paper is an

attempt to prove the relation between nephritis and auto-intoxication. So far as the clinical manifestations of auto-intoxication are concerned, I wish to utter a protest. "I am from Missouri" and have not yet been able to satisfy myself that there are any clinical manifestations of so-called auto-intoxication.

It is only fair to state that the results of these experiments are exceedingly interesting, and should be carried further, as the author has purposed to do. Of course, the great weakness of experiments of this kind has been pointed out by Dr. Smirnow himself, when he attempted to produce kidney lesions by the intraperitoneal injection into rabbits of an extract of rabbit feces. Even if you produce a lesion, you do not know what it is caused by; that is, what particular thing in the mixture it is that produces it. Of course, in the intestinal contents we have a great variety of substances. We have bile, and we have bacteria and their products. There are also the digestive ferments and the products of digestion, as well as broken-down epithelial cells, mucus, etc. Therefore, it seems to me that the lines upon which this work must eventually be carried out are along the line of isolating the different substances that are present in the intestinal contents and testing them separately. So far as bile is concerned, I would simply point out that here, too, we are not dealing with a simple substance. Bile contains a number of different constituents; and, in order to reach a satisfactory conclusion, it will be necessary to test each different constituent of the bile.

Another point that I wish to bring up is this: That even though we prove that there are certain substances in the intestinal canal that, under either normal or pathological conditions, are capable of setting up nephritis experimentally, we have not proved that these conditions are applicable to the human being. That is always a weakness in applying any animal experiment to man. We must bear in mind, and it is very important to do so, that there are a great many harmful substances, no doubt, as well as a great many foods, that when taken into the digestive tract are not absorbed. Apparently the intestinal epithelium has a certain amount of selective action on the substances which it takes up; so that, in order to demonstrate that a given poison in the intestine causes nephritis, it is necessary to prove experimentally that it is a substance that can be absorbed by the intestines. If it is a substance that passes through them without being absorbed, it is unlikely to cause nephritis. As an example of what I mean I would call your attention to the very interesting work done by Miss Swartz. This work shows that certain Japanese sea-weeds, which contain a large percentage of nutritive material theoretically, are really of absolutely no value whatever, because they are not absorbed. They pass through the intestinal tract practically unchanged; so that before we decide that substances in the intestinal tract are deleterious we must demonstrate their absorbability,

as well as demonstrate experimentally that they are capable of setting up pathological lesions.

DR. C. J. BARTLETT (New Haven): Of the several view-points from which one may discuss the results of experimental nephritis as bearing upon clinical medicine, I wish to refer to only one, namely, the etiology of the disease; and particularly, to its production by those substances derived from the animal body. As is well appreciated, the etiology of the majority of cases of chronic nephritis is entirely obscure. Aside from those rather rare cases in which the chronic condition has followed an acute nephritis, the arterio-sclerotic type of the disease, and the occasional case in which a definite chronic poisoning, like lead, is the cause, we have to admit that the etiology of chronic nephritis is doubtful.

From the first, in the work in our own laboratory on experimental nephritis in the lower animals, we have had in view its production by something from the animal body. The work which had been done by others in this particular line has already been referred to by Dr. Smirnow. Wallerstein, by producing an artificial coprosthesis in some animals, and by tying the common bile duct in others, showed that an acute nephritis could be thus induced. His real object was the study of the formation of casts and his animal experiments in each case were continued for a few days only. It is of interest to note that Wallerstein apparently fully confirms the view that all casts, including the hyaline form, are epithelial in origin, and the work of Christian supports this.

The experimental results of Harvey and of Metchnikoff were obtained with chemicals similar to those found in putrefactive processes, but not coming directly from the animal body. It appeared to us that the intestinal canal offered the most promising source of material from the animal for the production of nephritis. By adopting the method which had been outlined by Dr. Smirnow, we aimed to get a bacteria-free extract of the feces. The injection of this extract into the peritoneal cavity of the experiment animals may not have given a condition entirely similar to that obtained in constipation, but it has the advantage of definitely introducing into the animal, in solution, a quantity of material that has been obtained from another animal of the same species. The results have been encouraging, as Dr. Smirnow has indicated. A considerable percentage of the animals have shown definite interstitial lesions of the kidneys. The most surprising result has been the obtaining of equally marked lesions when bile alone was injected, although here the number of animals tested is small. This is contrary to what might have been expected from the findings in chronic jaundice in man. It was also contrary to my own expectations. I had presumed that the effect produced by the feces-extract upon the kidney was due to some putrefactive products of bacterial growth in the intestine, instead of to the

bile content of the extract. So far, we have worked chiefly with one kind of animal, rabbits; and their kidneys seem to be very susceptible to the injurious action of various substances. Also, I appreciate that the results of such animal experiments cannot be directly transferred to a discussion of the disease as it occurs in man. However, our results, with those of Wallerstein, of Harvey, and of Metchnikoff, give added interest to the theory that the absorption of injurious substances from the intestine is responsible for much of the nephritis as it occurs in man.

DR. MAX R. SMIRNOW (New Haven): I just wish to say a word or two. It goes without saying that bile is a composite substance and it will require a great deal of work to find out which elements of the bile are concerned in the production of interstitial changes. Human bile and bile taken from cattle will not give rise to interstitial nephritis, but only to an acute process. As to the absorbability of these substances, I desire to mention certain experiments, though not with bile, illustrating the point I wish to make. Lyon has found that if he feeds an animal white lead, he always gets a nephritis that gives a picture similar to that seen in interstitial nephritis in man. But with lead acetate there is no change except an acute one, even after prolonged feeding. If, however, he would inject the lead acetate into the peritoneal cavity, so that it is absorbed independent of the selective action of the epithelium of the intestines and possibly escapes the changes that the liver cells would have upon it, he again gets interstitial nephritis.

I would therefore conclude that certain substances, although under normal condition, may be absorbed and changed, either by the epithelium of the intestines or by the epithelium of the liver before being excreted by the kidney, but if, for some reason, the liver cells are not properly functioning or the epithelial cells of the intestinal tract are not functioning properly, these substances get by them and have an effect on the kidney itself.

The Present Status of the Vaccine Treatment of Disease of the Ear, Nose and Throat.

FREDERICK N. SPERRY, M.D., NEW HAVEN.

From earliest times it has been noted, following an attack of disease, that the individual has often seemed to have immunity from that disease. Likewise it has been noted that poor general health or temporary poor condition increases susceptibility to contagion and that in these debilitated subjects the severity of the disease is most marked.

To the modern physician these terms "immunity" and "susceptibility" have new meanings and involve both knowledge and speculation as to the phenomena occurring within the body.

The attempts to produce immunity have been for the most part very recent. Inoculation of smallpox was practiced in England extensively in the middle of the eighteenth century, having been introduced from Constantinople by Lady Montague.

Jenner published his methods of vaccination for smallpox in 1796. The details of his work are so familiar as to require only mention.

The year 1880 marked the beginning of a new epoch. Pasteur isolated a minute bacillus which was the cause of chicken cholera, and noted that while inoculations of old cultures of the germ produced only a transient complaint they conferred immunity.

His investigation of anthrax and swine erysipelas followed and then rabies—his first work with a disease affecting human beings, and the disease with which his name is most frequently connected.

To trace the names and work of the investigators who followed would lead us astray from our subject. It is perhaps well, however, to repeat some of their conclusions.

Of bacteria pathogenic to man two only, diphtheria and tetanus, give off soluble toxins and these toxins are possible of neutralization by the administration of the appropriate antitoxin.

Endotoxins, which are not diffused until the bacteria disintegrate, may be combated by antitoxin, but with less success. We have here the problem of getting rid of the bacteria, which is more than the neutralization of toxins, and to increase the power of the body to destroy the bacteria is a problem which is being solved in part by the introduction of vaccines. By the term "vaccine," which seems improper in our present usage, having nothing to do with a cow, we mean a suspension of killed bacteria.

Vaccines are available for the treatment of infections where antibodies are produced in insufficient quantities, and most available where comparatively small amounts of toxin are being absorbed, and consequently the formation of antibodies is likewise small. The introduction of vaccine stimulates the general production of antibodies and the production is usually in excess of the amount necessary to neutralize the vaccine. An excess of antibodies increases the bactericidal powers of the blood.

In diseases of the ear, nose and throat we have conditions favorable for vaccine treatment, that is a localized infection, often in an area of lowered resistance. Here we have a minimum of toxin absorption and a consequent insufficiency of antibodies. It is in such conditions that we should be able to ask the whole body to help in manufacturing a resistance.

The reports on the use of vaccines are unreasonably variable, more than can be accounted for by scepticism and enthusiasm. It seems, after a review of the literature, not unfair to assume that some fault in technique is to blame for the lack of good results. The principal differences of methods of those who have failed to obtain good results from those who report successes are the longer intervals between treatments, a week or more as compared with three days, and the using of stock vaccines as compared with autogenous.

A few reports from those who have succeeded, and selected so as to cover the field, may be instructive, so let us summarize the reports.

Dr. James F. McKernon of New York, in 1910, in reporting on "The Value of Vaccine Therapy in Mastoiditis Complicating

Acute Infectious Diseases," stated that his experience with scarlet fever mastoids had been that the healing after operation was complicated by soft, flabby granulations, with an excess of discharge from the mastoid cavity, sutured flaps sloughed, and healing was always protracted. He reports his mastoid operation experience in six cases of scarlet fever, four cases of measles and two cases of meningococcus infection, using autogenous vaccines. In all the cases the granulations, discharge, sutures and duration of convalescence were most satisfactory and gratifying, and concludes: "From observation of the cases recorded, I believe in vaccine therapy we have an aid, first in wound repair, second in hastening resolution of the accompanying purulent ear, and third in increasing the patient's resistance to the disease, by neutralizing the poison in the system, and allowing a more rapid tissue repair."

Dr. McKernon was dealing with streptococci and pneumococci complicated by staphylococci in his scarlet fever cases and began with the injection varying from 15 to 50 millions. Injections were repeated every two, three or four days in the same or in decreasing doses.

Reporting on the use of "Streptococcus Vaccines in Scarlet Fever Prophylaxis," Watters of Boston cites the work of Gabritschewsky in Russia, who concluded after using the vaccine in 700 cases, that it had a decided prophylactic value.

Watters used vaccines for the nurses of the Haynes Memorial Hospital for Contagious Diseases. From a number of throats of scarlet fever patients many strains of streptococci were isolated and from these a polyvalent vaccine was made and standardized at 500 millions per cubic centimeter. Fifty millions were given, followed in one week by 100 millions, and in another week by 200 millions.

Before using vaccines thirty-five per cent. of the non-immune nurses contracted scarlet fever. In 1910 and 1911, using vaccines on thirty-six non-immunes, one only later contracted the disease and that a very light case.

In January, 1912, Dr. H. Beattie Brown of New York reported twenty-three cases of aural furunculosis. All of his cases had

resisted ordinary treatment and most of them were recurring furuncles. Staphylococci and streptococci were found and in some cases mixed infections. In using autogenous vaccines Dr. Brown's beginning dose of streptococci was 50 millions and of staphylococci 250 millions, and these injections were repeated in increasing doses every three days. No unpleasant effects were noted and the pain was usually relieved after the first injection. The average number of doses necessary was three, but one or two more doses were usually given. All the cases were cured and three months later there had been no recurrences.

Dr. E. W. Nagle of Boston, in 1910, reported on the "Results of Vaccine Therapy in Chronic Suppurative Ears" in forty cases. In six the discharge had been present only a few months but as they had resisted the ordinary methods of treatment were included with the chronic cases. The one failure was in this semi-chronic class. The other thirty-four had had discharging ears varying from one to forty years. The bacteria found were staphylococci, cocci in pairs, bacilli of the proteus type, influenza-like bacilli and a number of other bacteria which could not be classified. Some cases were of mixed infection. Autogenous vaccines only were used. In using the staphylococcus vaccine Dr. Nagle's beginning dose was 150 millions, second 300 millions, third 450 millions, fourth 600 millions, and this last dose was continued in most of the cases, but in one or two reached 1200 millions. Several cases of mixed infection yielded to the use of staphylococcus vaccine. The interval between injections was three days. There were no complications or ill effects. Thirty-nine of the forty ears became dry with no other treatment except the usual cleansing.

The points emphasized by Dr. Nagle are the getting of a virulent type of bacteria, killing them at the correct time before they have begun to lose their characteristics, and on subjecting them to the lowest degree of heat for the shortest possible time necessary to kill the bacteria.

Dr. C. G. Page, Dr. F. C. Cobb and Dr. E. W. Nagle, all of Boston, report that vaccine prepared from the bacillus ozaenae (Abel) gives better results in atrophic rhinitis than any other

treatment hitherto used by them. My one case of bacillus mucosus ozaenae vaccine is in accord with their statement. My own cases number seventeen and include a variety of conditions. Among the cases are the following:

Master W., age 10, was seen in September, 1910, in consultation with Dr. Lay. He had been unable to swallow solids or liquids for three days. His mouth could be opened wide enough to reveal a hard, swollen tongue and a follicular inflammation of his lingual tonsil. In two days he was swallowing soft food. This was the third attack of similar trouble in two months. Two weeks later he had another, and after another two weeks I saw him again in a similar condition. This made a total of five attacks at intervals of about two weeks, each attack lasting from four to six days. The interval between attacks was too short to allow complete recovery. From a swab from his lingual tonsil a staphylococcus and a streptococcus vaccine was made. The beginning dose of streptococcus vaccine was 20 millions, of staphylococcus 100 millions. These were repeated in increasing amounts at intervals of five days for seven doses. There has been no recurrence during the past two years.

Mrs. F., age 50, had four attacks of rhino-pharyngitis and suffered considerable prostration between January and June, 1911. She was sent to me in September, 1911, by Dr. Alling for treatment of another attack. The inflammation of the nose and throat was not unusually severe but the general prostration was more than common. From the nasal and naso-pharyngeal discharge streptococci and staphylococci were isolated. Of the vaccines which were made, the beginning dose of streptococci was 50 millions, of staphylococci 150 millions. Increasing amounts were given every four days for eight doses. After the third dose exhilaration was noted for two days after each injection. She has had no colds for the past six months and has recovered full strength.

Mrs. N., age 35, has had discharge from both ears since an attack of scarlet fever thirty years ago. For fifteen years she has worn artificial ear drums. A large perforation in the lower part of the tympanic membrane and an offensive discharge but no demonstrable necrosis of bone was the condition of either ear. Staphylococcus aureus and the colon bacillus were found in the discharge. Mrs. N. had thirteen injections of autogenous vaccines at intervals of four days. The colon vaccine was increased from 20 millions to 100 millions, staphylococci from 250 millions to 500 millions. With the colon vaccine, which was used alone at first, there was a marked change in odor of the discharge after the second dose. The next six doses were combined with staphylococci. The last five were staphylococci alone. Mental depression was marked while giving the colon vaccine. There were no other disagreeable symptoms. The discharge from the ears lessened and the left became dry, but

with the dryness came tinnitus and poorer adjustment of her artificial drums with resulting deafness, and as these were more troublesome than the discharge, vaccines were stopped and the ear moistened with water. The complaint for which she first sought relief was violent paroxysms of cough. She had a large lingual tonsil, inflamed lateral columns of the pharynx and a hyper-sensitive condition of the naso-pharynx. Pus was detected in the orifices of the Eustachian tubes and this led to the finding of the ear conditions. The vaccines prepared from the ear discharge almost completely relieved the cough.

Almost all of my cases have shown marked improvement, but I have had a few failures and these may teach us something.

One patient who had had an ear discharge for forty years had lost three-fourths of her tympanic membrane and had a Eustachian tube so open that air was felt to pass through on blowing and on swallowing. With staphylococcus autogenous vaccine the discharge lost its offensive character and was reduced in amount. That the ear did not become dry I ascribe to the open Eustachian tube.

A case of recurring rhino-pharyngitis who had sought relief without success, in ocean voyages, health resorts and medical treatment, had a streptococcus infection that was uninfluenced by autogenous vaccine. Later it was found that he had a chronic frontal sinusitis from which I believe pus periodically reinfected the nose and throat.

Another case is of a young man who had a troublesome naso-pharyngeal discharge which was uninfluenced by autogenous streptococcus vaccine. The remaining part of an adenoid, which he prefers to keep, must, to my mind, be removed in order to effect a cure.

Infections of the accessory sinuses of the nose have yielded but little to vaccine treatment unless the cavities have been drained by the appropriate treatment.

One more condition, tuberculosis, merits consideration, but it opens up a subject so large that the time allows only the general statement that in tuberculin we have a potent agent for the treatment of tuberculosis, which is so localized that the absorption of toxin is insufficient to arouse the whole system

to combat the disease. This stirring of the system to combat disease can be performed by tuberculin judiciously administered.

My thanks are extended to Professor Bartlett, who supervised the making of some of my vaccines.

In concluding I should like to point out that in vaccine we have an efficient helper, and while at times the helper may do the work of the chief, yet the best results are accomplished when the regular lines of medical and surgical treatment are followed and the vaccine is used as an adjunct.

DISCUSSION.

DR. E. TERRY SMITH (Hartford): I wish to thank Dr. Sperry for his very interesting paper. As it is only through the work of individual men throughout the world, gathered together, that we are eventually going to be able to determine the value of vaccines, I regard his contribution as very important. During the past few years we have used vaccines in the treatment of a number of conditions, and have considered them of value in cases in which we have inflammatory conditions, due to the presence of the gonococcus in the system, in furunculosis, in some cases of acute otitis media, and in exanthematous diseases; and all are pretty nearly agreed that in tuberculosis, if tuberculin is given by a competent man, a man who appreciates the danger of not giving great care and who gives it only in those cases that are carefully selected, we very often get, I think, what are apparently very brilliant results. The fact is that these vaccines are potent in their action, and may do more harm than good; and the great difficulty in preparing them is a great drawback to their use. This fact was forcibly brought home to me, when I found an article written by Mr. Allen, of London, who has done as much work as anyone else, working in this line. In this article, he summarizes his work in the vaccine treatment of the respiratory tract.

DR. GEORGE BLUMER (New Haven): I should like to bring up one point in connection with vaccine treatment, lack of attention to which may cause failure. Dr. Sperry has emphasized the necessity for the use of autogenous vaccines instead of stock vaccines in many cases. When you consider that there are ten or twelve different strains of gonococci in these infections, it is readily appreciated that it is necessary to use autogenous vaccines. One other thing that I should like to speak of is the fact that it is not doing a particle of good to inject the vaccines and raise the amount of antibodies in the blood, if the blood cannot get

at the focus of infection. Very often a localized focus of inflammation is walled off from the general circulation; and that is why you have to use the vaccines in the first place, because the organisms and toxins do not get into the general circulation to any extent. It is not much good to give vaccines, unless you do something locally to change the circulatory conditions. If you open a boil or an abscess, you change the circulatory conditions; but in the case of nasal disease, aural disease, or optical disease, you cannot do this. You can, however, do something to alter the circulation in these cases. For instance, you can apply cold, use various forms of cupping, or employ Bier's hyperemia when that is possible. What I want to urge is that it is of no use to give vaccines in local conditions unless you do something to change the circulatory conditions at the local focus.

I think that we are all greatly indebted to Dr. Sperry for the work that he has done, and we certainly have a valuable agent in these vaccines for use in gonococcal conditions and in such conditions as furunculosis of the ear. They may, however, be dangerous and should not be used promiscuously until we know more about them.

DR. FREDERICK N. SPERRY (New Haven): I would say only that, with reference to the autogenous and stock vaccines, it is more particularly in the case of staphylococcus infection that the stock vaccines are of value. I have not used them except in one or two furuncle cases, because I was working with autogenous vaccines to see what my experience with them would be. General experience shows that with staphylococci we can use the stock vaccine, but that with streptococci it is very necessary to use the autogenous. Of course, in the case of prophylaxis against scarlet fever, there is no possibility of getting an autogenous vaccine. Therefore, you must take a mixed culture or polyvalent vaccine, made of as many strains as you can find. The more varied the strains, the more likely you will be to get a resistance to the particular strain at work at that time.

Open-Air Schools.

H. MERRIMAN STEELE, M.D., NEW HAVEN.

Although the subject of my paper is not, strictly speaking, a medical one, yet in the establishment of this variety of school medical men have played so prominent and important a part, I believe (and the committee on literature believes with me) the question properly belongs on our programme.

The reason for this is as follows: First, the schools were thought of for the care of feeble, delicate children to whom it was self-evident confinement in a close schoolroom was detrimental. Second, there was the thought of the proper teaching of tubercular children taking the open-air cure. These two classes came naturally under the observation of physicians. Third, the medical man was sought by the heads of educational departments for advice and suggestions for the care of the health of these pupils, subjects of this innovation in pedagogics. Fourth, in many of our towns and cities physicians are found as members of boards of education. These reasons seemed sufficient to make a place for a short discussion of the subject at this meeting.

To the Germans we are indebted for the conception and first realization of the open-air school. In a suburb of Berlin, Charlottenburg, a school was started, named by its originators "the open air recovery school." It was not designed for the use or the treatment of tubercular children, as the name would readily suggest to the medical man and the vast majority of laymen interested in the "white plague" crusade. The object was rather to have a school where the children could be *cured* and *taught* at the same time. The children selected were those physically debilitated pupils who could not keep up with the regular work in the regular schools. Children so mentally deficient as to be the subjects for classes of subnormal pupils were not entertained.

It was felt if these physically but not mentally unfit children were sent to the regular sanatoria they would undoubtedly improve physically but would hand-in-hand fall back in their school work. If, however, they were kept in the schools they would deteriorate physically.

A school, therefore, was devised to meet the needs of this class of pupils. It was a school held almost entirely in the open air. Out-door life, plenty of warm clothing, good food and strict cleanliness was the treatment.

The success of the school was so immediate that, after the published report of the first three months' session, the demand for this type of school was felt all over Germany. The children who had been the subjects of this experiment had made such astonishing physical gains in weight and strength that the value of the school could not be ignored. Many who had been suffering from serious ailments had been entirely cured. To the surprise of the authorities it was found that these children did *not* fall back in school work, although but half the time was devoted to study their in-door contemporaries gave.

The report of this first school was as follows:

	Aggra- vated.	Un- changed.	Im- proved.	Cured.
<i>Anæmia:</i>				
34 children	1	9	11	13
<i>Scrofulous diseases:</i>				
38 children	-	8	22	8
<i>Heart disease:</i>				
14 children	-	7	7	-
<i>Pulmonary diseases:</i>				
21 children	1	8	8	4
Total, 107 children	2	32	48	25

The table shows that among *one hundred and seven children* the results of the school was a decided improvement or complete cure in *seventy-three cases*.

To these favorable results must be added the increase in weight shown by the children. On the average this was between six and seven pounds a child, or roughly, about one half a pound a week. It also shows that the children's powers of resistance

had been greatly enhanced by their life in the open air, so that, although the month of October was exceptionally cold and wet, none of the children suffered from colds or similar indispositions. From a medical point of view these favorable results had been attained by the simplest means; namely, being constantly in the open air, the action of sunlight, baths, simple but regular food, and the school instruction diminished both in the number of hours and in the number of pupils to a teacher.

This combination of physical betterment and mental benefit attracted the attention of educators not only in Germany but in England and the United States as well, and it was not long before similar schools were organized in Providence, R. I., Boston, Chicago, New York, and in our own State in Hartford and South Manchester. In these schools the value of the movement has been as amply demonstrated as in the original plant in Charlottenburg. Not all of these schools have been of the same construction nor have the promoters followed precisely the example set by the Germans. For instance, the first school in the United States, that in Providence, started in the month of January, 1908, and had for its house a brick schoolhouse, centrally located, not then in use. A room on the second floor was remodelled by tearing down a wall, giving a southern exposure, thus converting a four-walled room into a room of three walls. The open side was fitted with windows so constructed that when open the whole side of the room was practically exposed to the open air. These windows were only shut at night and during days when driving rain beat in.

Boston started in the summer months. Its school was in the absolute open with lean-to for shelter in rain and for cooking. This school did such good work it was soon transferred to the roof of a suitable building, covered with a shelter roof, and open on all sides. The authorities of the Boston school system thought so well of the work done that a resolution was passed providing that each new schoolhouse built in that city shall have at least one open-air classroom.

New York, following, used for its first school the old ferry boat *Southfield*, at that time in use by Bellevue Hospital as an

out-door camp for tuberculous patients. Among these patients were a large number of children of school age. These children one day banded together and informed the doctor that they wanted a teacher and to attend school. This unusual plea so impressed the Board of Education it was given prompt and favorable attention and a school was started in December, 1908, the school officially annexed to Public School No. 14. So successful was this innovation that four more schools rapidly followed: three on ferry boats and one on the roof of the Vanderbilt Clinic, at Sixtieth Street. On December 22d, 1909, Dr. William H. Maxwell, Superintendent of Schools, called a conference of medical and school authorities to decide how rooms could be remodelled to fit them for this new use. As a result it was agreed that all the intakes of the regular ventilating system should be cut off, and hand control of the temperature prevail, and that, further, the minimum temperature allowed in the room should be fifty degrees, Fahrenheit; the windows to be Venetian blinds, and wherever possible the open-air schoolroom to be on the third floor, in order that they may be out of the dust level of the streets. The first of these open-air classes was established in April, 1910, and its organization awakened such popular interest it is probably a direct result of the movement that in April of the same year the Park Commissioner announced he had decided to grant special privileges which would permit children of the kindergarten classes of the public schools to pursue their studies in the open air during the pleasant weather in Central Park and the other parks of Manhattan.

In the summer of 1909 the Hartford Society for the Prevention of Tuberculosis established a camp and an out-door school in one of the city parks. Forty-one children were admitted during the summer months. They were mostly frail and anæmic and weighed on an average eleven pounds below the normal weight for their age. The children who remained in the camp nine weeks or over gained on an average six pounds during the time, while a marked improvement was shown in the condition of those who remained a shorter period. With this striking example of the good of the open-air life the Hartford Board

of Education appropriated necessary funds for the establishment of an open-air school. In January, 1910, the school was started in a specially constructed tent on the grounds of the old Sigourney homestead, the building of which is now used as a trades school and night school. The results in Hartford have been as striking as have been those in other communities in which this class of school has been operated.

The methods and procedures in vogue in these schools is briefly as follows, taking Hartford as a general example and abstracting from the report of the Board of Visitors for the year 1910.

The school was opened the morning of the third of January. It was rainy, cold and disagreeable. Twenty-three children registered and after each had been provided with reefers, sweaters, toques and sitting-out bags, they began actual school work in the tent provided. The change from warm homes and warm schoolrooms to an open tent must have been trying to some of the children, but no word of discontent, grumbling or crying was heard that day, and the same spirit of cheerfulness prevailed during the entire six months of the school. The children were selected from thirteen different schools and from ten different nationalities and numbered forty-one before the session closed. They were first weighed and thereafter tested on the scales weekly and a record of their weights kept. Some of the records show a remarkable gain while others show steady upward progress.

The temperature of the tent has showed as low as 16 degrees while study was in progress and no one seemed to suffer from the cold, protection being afforded by the sitting-out bags and heated soap-stones to the feet.

The dining room is on the first floor of the building in close proximity to the tent schoolroom. The children received three meals a day at the school, while many of them had breakfast and supper at home.

Coming to the school at eight-thirty in the morning, the daily routine was as follows:

Breakfast	8.45-9.15
Recitations	9.15-11.30
Gymnastics and play	11.30-11.45
Washing of hands and dinner	11.45-12.30
Cleaning of teeth and sleep	12.30-1.45
Recitations	1.45-3.45
Supper	3.45-4.00

The breakfast consisted of cereal, hot cocoa, bread and butter. Before going home the pupils were given milk with either bread, crackers, gingerbread or corn-meal bread. A sample menu for dinner was as follows: cod-fish cakes or meat, creamed carrots, potato, bread and butter, stewed prunes, and so on through the changes of suitable diet lists for growing children.

After dinner the children cleaned their teeth and retired to a room on the top floor of the building, where, with windows wide open, they lay on reclining chairs well wrapped in blankets, were read to for fifteen minutes and then slept for an hour or, if not sleeping, were compelled to maintain absolute quiet and rest. It is interesting to note in passing the majority of children did sleep, even boys so old as fourteen years.

There were nine grades in this school. One teacher taught the first five grades while the second taught the remaining four. When possible the classes were united. The backward pupils were greatly helped by reciting with several classes. Children who were poor in a certain branch were put into two or three classes of that branch. A child who was particularly bright in a particular study was allowed to recite that branch with a higher class. In every way the children were encouraged and not held back. The children wanted to work and to work hard, and wished to keep abreast in their studies with the children in the other schools. While they were unable to work hard in the other schools on account of ill health, they could do so in the open-air school, where they improved rapidly in health and where they studied under such favorable circumstances.

The thought of health and strength, and not that of sickness and weakness, was held before them all the time. They were not encouraged in the thought that they were invalids. They

were taught the value of cleanliness, fresh air, sunlight, exercise and rest.

Chronic headaches and coughs would disappear after a few days' stay in the school. A cough was rarely heard. Then, too, the little, sober, quiet, inactive people grew happy and would take part in the sports. Better health and spirits, of course, meant better work in their studies.

The results in some of these schools have been faithfully and minutely tabulated. The following is taken at random from the published reports. In the school in Providence, R. I., besides the record of weights, an estimation of the hæmoglobin was tabulated, showing the percentages before and after attending a session. The results were as follows: When the school opened in January the hæmoglobin percentage was a little less than 74. This percentage rose steadily until at the close of the school year in June it reached 84, an increase of 10 per cent.

Turning now to the report of the Thackley School, maintained by the city of Bradford, England, the summary is of interest as regards the increase in weight, hæmoglobin and chest measurements. The report is for a period of nine weeks during the fall of 1908. Taking the girls; there were twenty-one from seven to twelve years of age.

Their average increase in weight was 5.7 lbs.

Their average increase in hæmoglobin was 10 per cent.

Their average increase in chest measurement was 1 inch.

It is impossible to make a general statement of the cost of such an institution as outlined above. The report of the Boston school gives the information that the cost for the school teachers and the school equipment is about the same as it would be in any other school. The cost for raw food for each child is about twenty cents a day, and the cost of preparation and serving it, together with all the other expenses included beyond the school expenses, is about thirty cents a day. These Boston figures were based on the expenses for a school of about forty children.

The Civic Federation in New Haven, wishing to emulate this good work, appointed me, through the chairman of the Com-

mittee on Sanitation, to try to establish an open-air school; likewise to make an attempt to secure better ventilation of the regular schoolroom; that is, to have more fresh air constantly in the rooms, thus imitating, in a degree, the open-air rooms of other cities.

After consideration, we agreed to try to establish an open-air school, pure and simple, believing it would serve as a demonstration of much more importance than any other for the consideration of those particularly interested in educational matters and to the general public, to whom comes the burden of paying if such schools are believed worth while.

Consequently, individual subscriptions were solicited which met with a ready and most encouraging response. With this support it was possible to buy tent, flooring, sitting-out bags, sleeping chairs and blankets.

The Board of Education, besides giving a teacher, furnished chair-desks, blackboards, and the regular school equipment. The managers of the New Haven Orphan Asylum donated the morning and afternoon lunch of crackers and milk.

The Orphan Asylum was selected for a demonstration school for the following reasons: Because out of the tent life the pupils lived in exactly the same surroundings, were fed the same and had the same routine as the other inmates of the Asylum, thus giving eminently fair conditions for comparison as to the benefit, or lack of benefit, of the out-door school.

Ten children were selected, ranging in age from five to nine years. None had organic disease; one was mentally deficient and one suffering with chorea. With two exceptions, the children were all below the normal weight for their age. All were decidedly anæmic, as shown by the hæmoglobin tests made at the opening of the school.

Our plant is described briefly as follows: the tent is large and mounted on a permanent platform, the floor space of which is twenty by thirty feet. The tent is of the regular army T shape pattern, but differs in the fact that the sides may be raised or lowered in sections in order to meet the wind conditions of different days. Completely covering the tent proper is a fly or

overhang. A low, board wainscoting surrounds the floor space, its purpose being to keep direct draughts from the feet of the pupils. Regulation school chairs and desks are screwed to the matched board flooring. Blackboards are fastened to the posts and frames which make the sides of the room. At one end of the tent proper the flooring extends about twenty feet, forming a platform on which the children may exercise, at the discretion of the teacher. This platform is covered by the fly, as is demonstrated by the photographs I have passed around.

To keep the children warm is, of course, a vital question if an out-door school is to succeed. Our children are dressed, as regards underclothing and in-door suits, exactly as are the other inmates of the Asylum. In the tent they wear their overcoats and sweaters and mittens (if they desire). Their heads and ears are protected by toques and on severe days they have woolen blankets to wrap over head and shoulders.

They sit in felt-lined canvas bags, which are attached to the chairs and strap over the shoulders. This leaves the hands and arms free for their desk work.

At signs of any real chilling the teacher has them get up from their desks for a romp or any exercise she deems wise to "warm them up."

The only complaint any of the children made was of their feet. To overcome this the use of warm soap-stones was considered but rejected, for two reasons: First, the use of artificial heat would tend to make their feet tender. Secondly, we were informed by those who have had experience that the constant heat ruins the soles of cheap shoes by reason of drying.

This problem was successfully solved by supplying the children with thick, heavy felt boots such as are worn by "lumber-jacks," for instance.

The school begins at nine o'clock and at ten-thirty a luncheon of milk and crackers is served. The school session then continues until noon, when the pupils go to their dinner in the Asylum. After this meal they are taken to a room in the regular schoolhouse on the grounds of the institution, in which, with windows wide open, they recline on steamer chairs, well wrapped

in blankets and for fifteen minutes the teacher reads to them. The remaining three-quarters of an hour they are supposed to sleep and, the teacher reports, the majority do.

The afternoon session ends at three-thirty, at which time they have their second luncheon of crackers and milk. Then they join the other inmates of the Asylum and, until the next morning, follow the regular routine of the institution.

At the opening of our school, December 12, 1911, we did hæmoglobin tests, the readings showing an average low iron content. The last examination, March 29, showed a normal high percentage, the averages being: December 12, 61.6 per cent.; March 29, 85.9 per cent.; 24.3 per cent. gain in three months.

Our weights, as compared with the reports of the other schools, are disappointing. The first two weeks only two children gained; the remaining eight lost, the average loss being nine ounces. This loss has been regained and the children are slightly over the initial weight. I believe this discrepancy in our results and those of other schools is due to the fact we did not start with under-fed, ill-housed children, and had we selected such a class of pupils we would have witnessed a gain in weight, provided we could have fed them as the Orphanage children are fed.

Regarding the health of the children: Three had ordinary head colds at the beginning of the session and were taking medicine for this reason. All three had lost their colds by the end of the first week. One child who had habitually complained of headaches in the regular schoolroom has not once complained of this disorder in the tent. A child with chorea was completely cured in a very short time.

The cost of our plant was as follows:

Tent	\$180.00
Flooring, uprights, etc.	279.48
Sitting-out bags (10)	31.36
Blankets (10)	29.00
Steamer-chairs (10)	20.00
	<hr/>
	\$539.84

To this list should be added the cost of the desks, chairs and regular schoolroom equipment, which was supplied by the Board of Education.

It is our hope this small tent-school may emphasize the fact that fresh air and plenty of it does not cause children to take cold and, with this proven fact, we may have our regular schoolrooms more freely and constantly ventilated than is the present habit, both for the sake of the debilitated pupils and for the sake of our healthy children, in order that we may keep them in health.

DISCUSSION.

DR. HENRY F. STOLL (Hartford): *Mr. President and Members:* The open-air school is a very definitely established institution; and I think that anyone who has seen the work and the results of such a school cannot help but be very enthusiastic concerning it. At Hartford, we had the first open-air school in Connecticut and the third in New England; and it is now at the end of its third winter. We had one hundred and thirty-six children, who were made up of the so-called delicate children. Our first effort was to get children from tuberculous families. We tried to obtain them through physicians and the Visiting Nurse Association, and by communicating with sanatoria. In this way we got quite a number whose parents had died of tuberculosis or had the disease.

In addition, we had children who were nervous and who had bad headaches. I am particularly interested in the case of chorea that Dr. Steele has spoken of, because we had two cases of this disease. One was moderately severe; and the other very severe, so that the child could hardly walk. Her movements were so marked that one day she fell out of her seat in school. She also had mitral regurgitation, as did the other child, a boy. She had gone to school a short time, and had learned to do some elementary things with the lead-pencil. This is a photograph of the attempt that she made when she first entered our school to copy some figures. It is apparently scribbling, but shows the impulses that she could not restrain at that time. About twenty days later, the teacher endeavored to have her trace some figures while holding her hand, to see whether she could not go over the letters. This chart shows the figure "3." She attempted to trace it; but, notwithstanding the fact that her hand was being held, it was impossible for her to do it. The first attempt was toward the end of September. On October 13th occurred the next attempt, in which the letters are more steady; and on October 26th, a month after the first effort, the figures

were very satisfactory. She had no medication while in the school. She did not rest any more than the other children. She was even allowed to play little games, but I think that this was a mistake. I had forgotten to tell the teacher not to do so. I have seen her since she left the school, perfectly cured. Her mother said that she wished we would take her back, but the school was too full for us to be able to do so. I watched her for half an hour, and there was no chorea at all, which is quite remarkable, considering the severity of the case.

A number of children were much benefited. The chronic headaches were all cured very promptly. We had no case of open tuberculosis. We turned down a number of such cases that were presented, because we did not think it fair to give such delicate children any chance of infection, although it might be only a slight one.

Regarding the equipment, I think that a few suggestions are worth making as the result of our experience. We found that an ordinary tent roof is unsatisfactory. The roof should be wooden. The walls should be six feet high. The wainscoting is necessary for warmth, and there should also be about two feet of sand under the floor. This enables it to stand the weather better. The tent or building should face so as to bring its longer sides running east and west. This gives a greater exposure to the sun. The children, preferably, should face north, so that the sun will not shine in their faces, and so that they may not face the snow in winter with the sun shining in their eyes.

We found that, including the salary of the cook, the food, the gas, and the paper-napkins, it cost fifteen cents a day for each child. They have an excellent dinner, and a light breakfast and supper, at the school; and before they go to school they have some breakfast, and have something more to eat when they go home.

With regard to discipline, we have noticed that a number of children known as bad boys before coming to the school have changed materially since they came. I do not know whether this is the result wholly of the fresh air, for our principal is a remarkable woman and gets on better with children than some other teachers do; but they noticed the same thing in Chicago, where the number of pupils in the open-air schools who had to be punished for misdemeanors was less than in the closed schools. Mr. Graham has stated that putting a boy in a closed schoolroom and expecting him to do his best work is like tying the wings of an eagle and then kicking it to make it fly. One day the children had an arithmetic examination and did not do very well. The teacher thought this was because it was too cold, and gave them the same examination over again the next day in a nice, warm room. She found that the results on the first day out of doors were much better than those on the second day in the closed room.

DR. THOMAS G. SLOAN (South Manchester): *Mr. President and Gentlemen:* Until I heard Dr. Steele's paper, I thought that we had the only open-air school that was not causing the pupils to increase greatly in weight. The school in South Manchester has been running sixteen months, and the result has not been wonderful. There are some reasons for this. One is that we have no really bad material. There are no tenement houses in South Manchester, and half the people there have their own gardens; so that the children have plenty of fresh air, and most of them have enough to eat. As we do not take cases of open tuberculosis, this cuts down the cases that really need open-air schools. It is an entirely different proposition from what you get in a large city. We have had thirty cases, thirteen being cases of anæmia and malnutrition. The average duration of attendance was five months. Six of these cases improved, and seven did not improve. We had three cases of chorea, all of which improved. One of these was very bad, and is somewhat better. We had cases of endocarditis, three of which were congenital. One patient with chronic asthma had had during previous winters five attacks a year, but has only had three this winter. One case of chronic adenitis which could not be operated on, for some reason, improved somewhat. We had a case in a girl of thirteen years, who had had tuberculosis and had recovered. She remained in the school four months, and gained fifteen pounds. Then there was a girl of ten who had had pneumonia and pleurisy. She was in the school three months, and gained ten pounds. These two patients did remarkably well. We found an average gain of four pounds a child.

Fully as much of the benefit that the children get, I think, is from what they are taught as from the fresh air and food. They are taught how to take care of themselves and to sleep with their windows open. We also teach the mothers about the diet.

One thing that has not been touched upon is that we teach the children to brush their teeth. I have examined all the school children in South Manchester, and have been surprised to find how few of them have teeth that are half-way decent. The children who brushed their teeth every day had good teeth, and the others did not. That is one thing that they have to do every day in this open-air school. Comparing my figures with Dr. Steele's, I think we have not done so badly as I thought we had done.

DR. NATHANIEL E. WORDIN (Bridgeport): I should like to ask Dr. Stoll about his school at Hartford, how it is run and who pays for it?

DR. HENRY F. STOLL (Hartford): The city furnishes the teacher and provides the building. They are going to build us another this summer, by the way. The Society for the Prevention of Tuberculosis furnishes

the room to cook in and pays for the gas. In other words, the city provides the school building and school equipment, the teacher, and the room in which the children take their bath. They have fitted up the building and made shower-baths, etc., at their expense. The Society for the Prevention of Tuberculosis furnishes the food and the equipment other than the regular school furnishings. It costs about ten dollars to furnish the child with the bag, blanket, and comfort.

DR. O. T. OSBORNE (New Haven): Although you may not know it, at the Gaylord Farm Children's Cottage we have a school that is running very successfully. The children enjoy it hugely, while getting well from their tubercular trouble.

DR. HENRY M. STEELE (New Haven): I wish to say, in closing, that I agree with Dr. Stoll about the construction of the school in thinking that a wooden roof is better than a canvas fly; but, then, the thing that appeals to the children is the fact that it is a tent. All children like tents, and there is a little psychical element in having the whole building look like a tent. A wooden roof, however, is better in winter, and gets rid of the snow, which causes the flies to sag badly, as they are over thirty feet long. It was quite an undertaking to establish our school in New Haven; and it could not have been done, probably, had not the Orphan Asylum allowed us to use their ground and given us the two extra meals a day as lunches for the children.



SURGICAL PAPERS.

The Treatment of Tumors of the Mammary Gland.

PHILIP W. BILL, M.D., BRIDGEPORT.

It would seem that any remarks on the treatment of growths in the breast, made before this Society, especially with the paper of Dr. George N. Bell of Hartford, so recently in mind, would be not only superfluous but also show a want of appreciation of the value of your time; and yet the very fact that the circumstance about to be related could possibly occur is my excuse, and if the discussion which this paper may call forth shall help to fix a few surgical platitudes in the minds of any number of medical men, your time will not be wholly misspent.

A few months ago the following case presented itself: Mrs. Z., 56 years old; married; never been pregnant; in good health; weight, 176 pounds; height, 5 feet 7 inches; had never had any symptoms referable to the breast until one week previously, at which time she had fallen, striking the chest in the region of 7th and 8th ribs on the left side. A contusion resulted from the trauma but on handling the breast she noticed that it seemed firm and rather hard. Alarmed, she sought advice.

Examination showed both breasts to be the seat of chronic fibrous mastitis with two well-marked bunches in the right and one in the left breast. She was told that the condition was one that needed surgical treatment, that while the growths might be benign, it was impossible to be sure, and the chances were greatly in favor of their becoming malignant if allowed to remain.

Her consternation was complete. Could she have some one's else opinion? Certainly.

A man who probably does more surgical work than anyone else, or who, at least, has that reputation among the laity in Bridgeport, was decided upon. At the end of his examination he was even more positive and emphatic in the opinion that removal of the breasts was imperative. He was thanked and

dismissed. The patient then wished to consult Dr. X., who is the most widely-known internist in our section of the county, a man who is sure of his diagnosis, and whose opinion, by his method of expression, carries conviction. Said he, "you have nothing more in your breasts than a great many women have at your age. I can see no indications for an operation, and"—this seemed to affect the patient very much—"if you were my wife you certainly should not have one." The case was becoming interesting.

The next consultant was a man some sixty-five years of age, a splendid example of the general practitioner. He was satisfied that there was something in the breasts. Could not tell whether it was malignant or not, but would wait and watch, and as soon as the first sign of malignancy appeared have an operation.

Gentlemen, could a more unfortunate condition be conceived? A woman comes to the profession for advice, and what does she get—the choice of having her body, to her mind, horribly mutilated or of composing her mind in peace that there is nothing more the matter than might be with the majority of women at her age, and she need not bother at all. There is something seriously the matter here. Two men of equal and undoubted standing give two opinions, one of which is almost criminally wrong, if acted upon, and the patient is truly fixed on either horn of the dilemma.

Now, imagine my surprise when, upon rehearsing the case and opinions to a number of physicians of my acquaintance, to have a good part of them admit seeing nothing very much out of the way in Dr. X's opinion. They, themselves, knew of cases in their own practice that had had similar conditions for as long as two years, with no thought of interference. Would they have been impressed if they could have stood this last winter in the amphitheatre of one of the men who has made this subject a life's study, and heard him say "here are two cases, one of undoubted carcinoma of the breast and the other, one of chronic involution mastitis which externally shows no sign of malignancy—both will be submitted to a radical operation, but if you

take nothing else away with you remember this, the second case demands and ought to receive the radical operation, even more than the first. In one, malignancy is established, and who may say that we shall be able to eradicate it, in the other, if malignancy be there we can get rid of it, and if not present we render the woman doubly safe by operating before it develops."

Shall we operate on every growth in the breast of a woman over forty? Certainly. And if the woman be younger? Why not? Who can say how long the fibroma—the intracanalicular myxoma—will remain harmless? And who can tell what *good* any growth of any kind in the breast ever did a woman? The fact that the patient presents herself shows that she has the bunch already on her mind as well as in her breast.

There remains the condition, which is responsible for this paper. Chronic involution mastitis, chronic interstitial mastitis, intracanalicular fibroma, myxoma, cystoma, or whatever form it may take. Histologically we have a thickening and increase of the fibrous stroma of the gland, with here and there the isolation of acini, whose epithelium furnishes the focus for trouble; this isolated epithelium may form a cyst, an adenoma, a carcinoma, who can say, from the outside, which?

It does not seem necessary that every woman in whose breast one can make out a diffuse, regular thickening should be subjected to a radical operation, but she certainly should be told the possibilities and advised to have the breast removed. If there be palpable bunches, whether cystic or solid; if we can be sure that the condition is not malignant, the breast should be removed, the tumors examined and further interference be regulated by the findings. If, however, there be any question, at the time of operation, as to the malignancy or non-malignancy a radical operation should be done.

As to the operation itself, Dr. Bell's paper gives the latest word. In fact it seems as though the mechanical limit had been reached; there is no need for more expansive operations, enough mutilation is done now; what is needed and demanded and what will from now on make the percentage of cures higher, and surgical efforts more satisfactory, is the earlier diagnosis

and earlier surgical treatment. Far better to make the mistake, if it be one, of operating on ten breasts which might never become any worse, than allow one to go on and kill by becoming malignant. It seems that if the patient referred to here does live on and no change develops in her breast, her influence on the community, due to her bragging of how she beat the surgeon, will be deplorable—perhaps women with undoubted malignant trouble will point to her, when advised to submit to surgical interference, as a living example of the uncertainty of surgical knowledge and treatment, and under the circumstances who can blame them?

Nearly all of the benign growths may be removed through the incision in the fold of the breast near the chest wall, and the disfigurement is very slight, if any. If the diagnosis of benignancy be confirmed, no one is hurt, and the patient's and doctor's minds are at peace.

In the cases where malignancy is apparent, we have a number of pernicious theories to disapprove. Perhaps the most dangerous and fallacious one is that advanced by a number of medical men, that any case gone to the point where malignancy is undoubted is past help and it makes little difference what is done. To be sure, valuable time has been lost, often by waiting to make the diagnosis, but statistics show beyond a doubt that even after one can demonstrate axillary involvement the patient has a chance of cure and certainly a prolongation of life by a thorough and deep removal of glands and tumor.

As the cases now come to the surgeon it is necessary to remove a great deal of tissue: axillary glands and fat, both pectoral muscles with the mammary gland in one piece if possible, together with a dissection of the aponeurosis of the external oblique to the umbilicus. It is fair to hope and expect that with the era of early operation there will be a diminution in the amount of tissue necessary of removal. It may be possible that the teaching, in the diagnosis and treatment of appendicitis, which has rendered the operation for pus and peritonitis with its mortality very much more rare than it was ten years ago, may find an analogue in the treatment of tumors of the breast, so that in

some future time the radical operation for malignant disease of the breast may be put away on the same shelf with the old radical operation for diffuse peritonitis due to a ruptured appendix.

DISCUSSION.

DR. GEORGE N. BELL (Hartford): Every year, almost every day, we come back to the same old subject, the necessity for early diagnosis; we hammered away at the need of early diagnosis in abdominal lesions, and obtained results because the consequence of delay was so apparent to every one concerned, and a mistake on the part of the physician subjected him to so much adverse criticism that he became keener, in most instances, with every case, and delayed diagnosis and treatment in abdominal lesions have become much less frequent than they were a few years ago; but the same is now true about tumors of the mammary gland. Just because the delay of a few days, or possibly weeks, will make very little difference, they are too apt to be postponed for a few months, and then, when it is too late, brought to operation.

I do not believe that there is a single class of cases that carry so heavy a weight of responsibility in their final decision as these same neoplasms of the breast; and just why they are put off with recommendations to wait by men who would be the first to advocate operation in abdominal or other pathological conditions, it is hard to understand. I suppose it is primarily the disinclination on the part of the physician to subject his patient to an operative procedure, the necessity for which is not evidenced by acute symptoms. But what is difficult for me to understand, is how they dare assume the responsibility for passing a negative opinion, when they know, if they care to look it up, that about one woman in every eight over 35 years of age dies of cancer, and that of all women who die of cancer 16 per cent. have cancer of the breast, and that more than 50 per cent. of these could probably be successfully operated upon if seen early enough. That they are not seen early enough is the trouble with the whole matter; it always has been the trouble and will continue to be until the medical man wakes up to the fact that over 90 per cent. of the tumors of the mammary gland are just about as good neighbors as rattlesnakes, and should be removed with the same thoroughness if not with the same celerity.

The case that Dr. Bell has just told us about is typical, so also is the treatment; this woman may be one of the few who under like circumstances has not a malignant growth, but it is difficult to see how anyone has arrived at sufficient diagnostic ability to tell positively that such a thing is a fact; and to advise waiting until sure of malignancy is to condemn the patient to certain, miserable death.

A paper like this is of value because it makes us think, and brings again to our minds what we are too prone to forget, that the only way to cure cancer, with our knowledge of the disease, is to diagnose as a possible or better a probable malignancy every tumor of the breast, and then proceed to find out by removal of the whole breast, or a portion of it if doubtful, and get an immediate report, and base our further proceedings upon our findings.

We also should remember in this connection that a chronic mastitis has a possibility of developing into a malignancy; and added to that, if we have trauma, we have 16 per cent. better chance of its becoming malignant than if it had continued as a simple mastitis.

DR. D. CHESTER BROWN (Danbury): *Mr. President and Gentlemen:* The motive of the paper has evidently been presented very thoroughly to you; and I have nothing to add to that, though I might have expressed it in a somewhat different manner.

The treatment of tumors of the breast would naturally resolve itself into two phases: treatment by the general practitioner and treatment by the operating surgeon. To the general practitioner, it should come home that eight out of every ten cases of tumor of the breast are definitely and positively malignant; and of the two remaining cases of the ten, which may be benign, one, or a little more than one, will become malignant. Now all that a man in general practice has to do is to sit tight and call every case that comes to him a malignant tumor of the breast, and he will be right nine times out of ten, which is a pretty good proportion for diagnoses.

It is true that we have not the statistics that we should have on involution mastitis. How many of these cases occur that do not come to the surgeon has not been determined. It may be that the laity have a better proportion of these cases in their minds than we have, and it seems to me that ultimately we should have this data for forming our opinion.

Now, with the cases referred to the operating surgeon by the general practitioner, the problem comes to him as to whether he shall do an operation immediately, whether he shall do a minor operation or an exploratory operation, or whether he shall do the complete operation. In regard to this, it may be said that a movable growth or a definitely circumscribed growth may give an excuse for doing a minor operation; but when a man like Finney says that a benign growth may be removed, as he states in Keen's Surgery, it seems to me that we have not come anywhere near together on what should be done with these cases. They should all be removed, I believe, as Dr. Bill states; and it seems to me that it is a criminal act to cut into a benign growth, or what may appear to be a benign growth, to see whether it is benign, and take out a piece

of it. All the best surgeons to-day remove the growth, breast, muscles, glands and fascia *en masse*; and you never see the growth, and never should see a cut surface of it, if you are going to have good results.

Therefore, in these circumscribed, movable conditions of the growth, it seems to me that you are justified in removing the entire gland and the growth. Afterward have the examination made; and then make the operation complete, if necessary. The more we reiterate this point to all our friends in the profession, that they bring all the cases of primary tumors of the breast to the surgeon and relieve themselves of responsibility, the better it will be for them.

DR. DANIEL F. SULLIVAN (Hartford): A subject as broad as cancer of the breast, and so frequently the cause of death in our community, deserves a great deal of profound consideration from the medical men of Connecticut. In Massachusetts the mortality is one in every ten amongst women; in our own State, if correct data were available, the mortality would be found even higher, and perhaps on a par with tuberculosis, which costs Connecticut a million dollars a year. This surely is a thing for careful thought. We discuss its treatment, and claim cures. The former accomplishes nothing, while our claims prove less. No one yet has told us what cancer is,—no one has proven how the erratic epithelioid cell begins its vicious course. Gaylord, in his investigations of mouse cancer, failed to prove anything. Whatever knowledge we possess of cancer is purely hypothetical, and based on clinical facts. With these premises accepted, the awful radical treatment of breast cases in vogue to-day can be and is questionable. Halstead himself no longer claims the brilliant end results of ten years ago. Some authorities state that our results to-day are not much better than the surgeons' of twenty-five years ago, who performed a simple enucleation. Why remove all the breast muscles when four-fifths of the disease can be traced in the lymphatics and fascia; very few cells, if any, are found in the muscle. The edematous arm, often the sequela of breast operation, can be avoided if the axillary vessels are properly covered.

It is now generally accepted that this painful condition is due to the contraction of connective tissues around the blood vessels, and not to the absent lymphatics. Covering these vessels with a flap of latissimus dorsi will avoid this complication. The reports from Guy Hospital, London, careful researches into the subject, discredit the brilliant claims of American surgeons, and many of the latter concede that the criticism is correct. There is one fact that we all can agree on—that every growth of the breast should be recognized early and removed promptly, and thus only will this dreadful disease be diminished. The ignorance of the public on this matter is appalling, and here lies a splendid opportunity for the speaking medical philanthropist to divert the attention of their

subjects from "First Aid to the Injured," and other classics, to "The Dangers of Leaving Small Growths of the Breast without Medical Counsel," and thereby save many lives that are needlessly lost.

DR. PHILIP W. BILL (Bridgeport): Dr. Sullivan mentioned Dr. Murphy's operation of not removing the pectoral muscle; but I may say that Dr. Murphy seems to be the only one who is able to do that operation, so far as I could discover. All the teaching that I have had has been so contrary to that, that, with the present standing of the cases we get, it seems as though it were a little premature to consider this procedure. Some day, if we can get the diagnosis—or, at least, get the chance to remove breasts before malignancy is established and its diagnosis made, the chance of doing away with the mutilating operation will probably present itself. The fact that the lymphatics do not go through the muscle, and that the aponeurosis of the muscle has to be removed, makes it impossible to be sure that you are getting off all the aponeurosis, parts of which dip down into the bundle of muscle fibers; and I see no reason why they should not carry foci of infection.

Some Reminders on Fractures.

AUGUSTIN A. CRANE, M.D., WATERBURY.

Whatever the effect on the hearer, there is always in this subject something satisfying to the writer. No matter how eminent, experienced, and successful the surgeon, the care of fractures always offers something new and important. No matter how small the field of the general practitioner, he can not avoid the subject nor the cases. He is confronted at any moment with emergencies upon the prompt handling of which will depend the after comfort and usefulness, and perhaps the life, of his patient. There is perhaps no time in the physician's career when he is in such dangerous state for his own peace of mind, and for his clients' welfare, as when, after a succession of propitious cases, he allows himself to concur in the verdict of his community, that he is a master in the treatment of fractures.

Not until he acquires such a respect and fear for the magnitude of the subject as to make him approach each case with trepidation, does he become a safe man to be at large. When, a month ago, I was called to the telephone by a practitioner twenty miles in the country, and asked what he had better use as a wash, in a case of compound fracture of both bones of the leg, a week old, where there was high fever and much swelling, and frequent chills, I was recreant to my profession in not telling him that the only effective wash would be to wash his hands of the case, and send it to the hospital.

X-RAY.

The first essential in the management of a supposed fracture is to diagnose it. As a means to this, it seems silly, but is essential, again to call attention to the ever-present desirability and usual necessity of the X-ray. Whether the benefit to the patient, or the protection to the doctor, is the greatest argument for this,

is impossible to tell: each is so great. Trying to keep constantly in mind that this is not a text-book, or even a treatise, but is as entitled, a series of "reminders," I will remind that the picture should be taken in two planes, as divergent as possible; that if there is to be only one exposure, that one should be made *after* attempted sitting, rather than before (1), (though both would be better).

The X-ray is not a substitute for skill and diagnostic intelligence and study, but an adjunct and supplement to them. "An X-ray picture is, in the vast majority of cases, in no wise essential for diagnosis of fracture, but is of invaluable aid as an adjunct in determining the result of a given method of reduction, and should never be omitted." (41)

For the benefit of hearers who believe that the X-ray may be all right for the other fellow who has not enough skill properly to diagnose and treat an ordinary fracture, but is not needed by him, I submit a series of radiographs of fractures in the position they were in after some qualified man had done his best without the X-ray. Not one of them is of a fresh case before treatment. They are either of cases in my own practice, or those of colleagues, where the best result had been obtained in reduction which the operator was capable of, and which were later improved or perfected, and that improvement verified by the X-ray; or they are old cases which were treated without X-ray, and healed permanently in the position shown.

Do not dismiss them by saying that they are botch-jobs, and you do not get such results. They were made by just as good men as the average here to-day (some are here to-day), and unless all your own results are verified by the X-ray, you *do* get such results in your own practice, and will get more.

Another reminder is that anyone, with a little instruction and a very little practice, can learn to take X-ray pictures; but that to read them when taken is an accomplishment that is only acquired by long experience. The man with large experience at it, and the man with little, can talk very glibly about what a picture shows; but the man who has done considerable at it without qualifying as an expert, will not be so cocksure of what he sees.

Advise your patient to have an X-ray, and tell him what it will cost. It is even chances that he will refuse. If so, you have protected yourself as much as by a picture; and he has bought, at no (immediate) expense to himself, the entire responsibility of the outcome.

CARPUS.

Be reminded that there are numerous injuries in the vicinity of the wrist that are not Colles fractures; that in addition to the long list of fractures at the lower ends of the radius and ulna, or both, and of dislocations, there are possible fractures of the various carpal bones, especially of the scaphoid; and that if the latter—and if it does not heal in a few weeks it never will—one or both fragments must be removed (57). As an instance of what the X-ray has done for the increase of our knowledge of fractures, a fairly modern authority (3) dismisses the subject of fractures of the carpus by saying that the force necessary to produce such a condition is so great that damage to the adjacent soft parts almost invariably accompanies the fractures.

G. G. Ross (4), in reporting his third series of 500 cases each of fractures of the extremities, and verified by radiographs, shows that fractures of one or more of the carpal bones occurred in nine per cent. of all fractures; and that in not one instance was there extensive damage to the soft parts.

These data were amplified by (5) reports on an aggregate of 2,500 fractures all verified by X-ray.

To a less degree, it is true of fractures of the metacarpus, tarsus, and metatarsus, and the articular surfaces of long bones, that they were not understood before the X-ray, and now can not generally be recognized without that agent.

A fracture of the proximal end of the first metacarpal is not very uncommon. Failure to correct it by forced abduction would produce serious impairment of function of the thumb. Diagnosis and treatment would be very unsatisfactory, if not impossible, without the X-ray.

Albee (6) has shown the possible severity of these lesions, the unlikelihood of their diagnosis without the X-ray, and the probability of prolonged or permanent impairment of function and comfort if not diagnosed and thereby properly treated.

It has happened (7) that a fracture of the astragalus caused deformity which could not be repaired until that bone was excised.

FIXATION.

The platitude that the only treatment of fractures is to bring the fragments into apposition, and keep them there, is no more illuminating than is the explanation that all a sculptor has to do is to take a block of stone and knock off what he doesn't want. To fulfil these two requirements will tax the ability and ingenuity of the ablest; and will be a frequent necessity for the least experienced. The first may require extreme leverage and traction, the use of the X-ray, an anæsthetic, an accurate knowledge of the anatomy and physiology of the region, and perhaps an open operation; any or all of these. The second will involve the best mechanical knowledge and ingenuity, and ability to improvise and make the most of available material.

APPARATUS.

Special apparatus is so numerous that it is impossible to follow the additions and multiplications of it. From the mass thereof it will only be possible or desirable to mention one here and there which has seemed of especial desirability. For the clavicle (54), a light mechanical device by C. F. Taylor is so simple, clean, comfortable and effective as to make the use of the cumbersome and irksome Sayre and Velpeau dressings seem anachronisms.

A pneumatic ambulatory device for thigh fractures, made in Chicago, has given me great satisfaction, in permitting early walking in such cases, but requires more adjustment and attention than the average nurse or interne will bestow and is not desirable except where the doctor who is responsible has time and interest to apply it.

Unable to find any apparatus which could produce and maintain such traction and countertraction in the humerus as the well-known Buck technic does in the femur, the writer described a traction splint for that purpose (8), which, as far as it has been used, has seemed to meet the indications claimed.

Well worked-out devices are offered, to extend the leg bones by spindles driven through them (9); by pins going in, but not through them (10, 11); for ingenious modifications of the Park-hill clamp (12); for the use of intermedullary splint of various materials, absorbable or otherwise (13); for driving a dowel pin through the bone without open operation, by the light of the fluoroscope (14); for pinching-clamps, encircling the bone (15); for a gripping apparatus something like an ice tongs, that cannot infect the marrow, and that will hold the faster the more it is pulled (16); for supporting the humerus (52); for exerting powerful and graded traction on the lower leg (47).

PLASTER OF PARIS.

But, however much indicated in especial cases, and however well the indications are met in these cases, in the great majority of all fractures the retention material par excellence is plaster of Paris. It is regrettable how little this is used and how poorly applied by the rank and file. A recent handbook (17), profusely illustrated, gives a fund of information on the use, preparation, and application of this agent.

Reminders are that plaster "casts" are not "casts" at all, but molds; that a plaster dressing is not necessarily a "cast," but may be a moulded splint; that by combinations of fenestræ and reinforcements almost any degree of injury to soft tissue can be properly handled with plaster; that "casts" of the thigh, knee or leg should include the foot, and that at right-angled flexion, and that such flexion can be furthered by partial flexion of the knee.

Whether plaster or not, it is highly essential that all fracture dressings be frequently inspected; certainly within the first twenty-four hours.

FRACTURE SPRAINS.

Ross (18) shows what the X-ray has done in giving a rational explanation of many so-called "sprains," and accounting for the disproportionate severity of the same by showing that they were really fractures. He now (19) goes further and shows that most (and inferentially, all) "sprains" are fractures at the point of ligamentous, tendinous, or capsular insertion. In seventeen months in 1910-11 he demonstrated 145 such "sprain-fractures," verifying them by the X-ray.

Ross performed fifteen experiments on living dogs. Bone gave way in fourteen, and ligament alone in only one, and this was held in a vise. (In two cases *both* bone and joint-capsule yielded.)

He deduces, but does not claim to have proved, that all luxations are rendered possible by the primary occurrence of a sprain fracture. A negative X-ray does not exclude this condition, e. g., in some of the cases demonstrated the fragments of bone pulled off were so small as to be hardly seen, though plainly felt.

Eisendrath (20) recognizes this lesion and W. Martin (21) finds in thirteen years of X-ray work that it is common to have small fragments torn away from the region of tuberosities in cases of complete dislocation of the shoulder.

It seems to me that Ross has proved that the word "sprain," if that means the wrenching of a joint, with laceration of capsule or ligaments without injury or luxation of bones, is a misnomer, and indicates a condition which does not exist.

The practical application of this research is this: "Sprains," if we choose to continue the word, should be treated by fixation. We had already learned empirically that they did better that way, but most of us have not uniformly given such treatment. The lack of recognition and appropriate treatment will, as in all other fractures, tend to produce deformity and arthritis, and excessive callus formation.

COLLES' FRACTURE.

In over one hundred X-rays of Colles' fracture (22) there were almost no instances where the upper and lower fragments override; and the question has been raised whether the fracture is ever produced by over-extension. There is, instead, impaction, and the consequent shortening makes the ulna longer, and carries the hand up dorsally.

In this fracture, preëminently, X-ray and anæsthetic are indicated. It is practically impossible to over-reduce (51). Even where the reduction is complete, we sometimes (23) get bad results from rarefaction and absorption of the impacted portion, and consequent distortion.

REMINDERS.

In fractures of lower part of leg, where there is difficulty in reducing and retaining, there is great advantage in tenotomy of the tendo Achilles.

In fractures of the upper third of the humerus, if the muscular action prevents us from bringing the upper fragment down to the lower, and keeping it there, we must reverse the process, and bring the lower fragment up to alignment with the upper, and keep it there, no matter how unnatural or awkward the attitude may seem (52, 8, 56).

Reduction against enormous resistance can be secured by a cloth retractor over the proximal end of the distal fragment, or by angulation out of the wound (39, 42).

Fractures of the malar bone that are hard to reduce can be handled by bullet forceps through the skin, the wounds being made so slight as to require no dressing (24).

NON-UNION.

The causes of non- or delayed union include interposition of soft tissues between the fragments, lack of approximation, deficiency of lime salts, and perhaps of the thyroid secretion, though experiments on fifty dogs showed no delay in union after loss of the thyroid gland (26). Doubt has been thrown on the belief

that incomplete immobilization is at fault, on the claim that a little mobility, with its consequent irritation, is a stimulation to repair (29).

Crile has shown (30) that fright is an important factor in the causation, (55) and grave systemic impairment may be a potent factor.

The treatment of this condition finds advocates for lime salts, (25) thyroid extract, friction, massage, electric light baths, high frequency current, deep injections of iodine and other irritants, ambulation, with Bier's hyperæmia, (28) acupuncture, electro-puncture, burial of ivory points, (25, 55) injection of blood (30) and of gelatine.

But for treatment, after all these methods fail, as they so frequently do, open operation offers a brilliant recourse. Whatever the claims pro and con of operation in general fractures, which I will take up later, it is conceded that in non-union it is the treatment of greatest satisfaction. In five thousand fractures treated by Peltsohn (27) there were fifty-three cases of non-union. These were all operated, and forty-five of them were cured, although twelve of the fifty-three were infected.

It is stated (30, 55) that bone being a special tissue, there will be no callus formation unless the fragments come into actual contact with each other. I am personally inclined to doubt this, as I think I have seen radiographs where fragments not in contact had thrown out large calluses from each end, which reached out for their mates, like vine-tendrils, eventually giving firm, but very crooked, union. One picture in the collection I am showing, that of the fracture of both forearm bones in the upper third, seems to me to support that claim.

Percy (30) differentiates between delayed union and non-union. In the former, when it is supposed to be due to imperfect apposition and insufficient immobilization, if we can adequately supplement these deficiencies there is no need to operate, for that is all that operation would do. In real non-union, his treatment is operative. He reports fourteen cases of operation, all successful, and in only one case did he have to remove the plates.

OPEN (COMPOUND) FRACTURES.

Many of these are still treated without exploration and cleansing, in the hope that perhaps they may not be infected, and it would be too bad to make that little hole any bigger. Unfortunately, some of these will do well, thus encouraging repetition of the practice of deferring opening and cleansing until systemic absorption may make it too late. I can find no recent authority for this practice. A few good results, thus obtained, will not compensate for the bad one which will eventually and inevitably come, and when it does, will be awful bad.

Primary opening and cleansing is demanded (31) by reason of the amount of unexpected debris, devitalized tissue, and foreign material, which not only interferes with union, but causes septic absorption. In some cases, through and through drainage is of value. Every case should be regarded as contaminated (32). The cleansing should be done mechanically and by iodine, and not soap and water (32, 33, 34). "The surgical busybody with soap and brush has killed more compound fracture patients than all the dirt carried in at time of injury." In gun-shot wounds, and wherever contaminated with earth and dirt, antitetanic serum should be given (32).

The use of plates in compound fractures is a subject by itself—the opinions are so varied. The objections to making an open wound are obviated by the fact that there is an open wound already. It is conceded (32, 33, 34, 37) that the plates will probably have to be removed, but that is a small matter after they have fulfilled their important mission.

The manipulation incident to frequent dressings and the weakening of supports by fenestration, go to make the retention of a compound fracture a difficult matter; and the fixation that a Lane plate can give under these handicaps is an argument for its use. Most authorities teach this (29, 33, 34, 35, 37), but the exceptions are of such rank as to give their objections great weight. Cotton (35) gives a list of seven instances in which operating should be done as routine, and number one on that list is compound fractures. But he qualifies this by stating that he considers "operative fixation at the time a compound fracture is

cleaned, should be avoided as a rule." * * * "Sometimes it is better practice to let the wound heal, and cut down later to secure fixation of the fragments." It seems to me that this is a clean contradiction, as at the time in question it is no longer a "compound fracture," which was No. 1 on Dr. Cotton's list.

Murphy (36) closes the fracture chapter in his annual by saying: "No bone plate insertion, osteoplastic splint, wiring or nailing should ever be done as a primary procedure in compound fracture. The fracture should first be reduced to a simple fracture before any foreign body is introduced. Probably all compound fractures are made septic (if not already so) by the manipulation attendant upon primary insertion of foreign bodies; and these bodies must be removed before the wounds can heal."

LANE'S PLATES.

Since 1909, when Arbuthnot Lane gave to the American profession his experience with the use of metal plates in fractures (53), the American use of his plates has been considerable, and the discussion of their merits has been extensive. It would transcend the limits of such a paper to attempt to quote all authorities, but I can offer a synopsis, or composite view of the consensus of American opinion, as far as there is any concensus, which will give a pretty accurate view of the state of American practice and teaching to-day (1, 38, 39, 40, 41, 42, 45, 46, 47, 48), and will note separately such divergent views as are offered by writers of weight.

If the requirements of getting the fragments in good position and keeping them there can be fulfilled by external splints, it should be done. If not, open operation is demanded; though, even then, there is a preference for catgut suture where it will suffice (37, 41, 46). If these means are, or are likely to be, inadequate, the use of the Lane plate, or similar support, is wellnigh universally approved by those best qualified to advise. But the burden of proof is on the operator to furnish a reason, in each individual case, for the procedure.

Non-union is usually accepted as an instance under this head, as are any other classes or cases in which the non-operative results are apt to be bad (35). There should be a selection not only of cases, but of patients (35), taking only those in good condition.

There seems to be no preference for plates of an arching shape. Whether the plate is above or below the periosteum is immaterial. Opinions are practically in unison in the Reminders to:—

Use a large and heavy bone clamp to replace and retain the fragments, till the screws are in.

Use screws threaded to the ends.

Have drill exactly the right size.

Get the wound dry.

Not drain it.

Suture it loosely.

Supply adequate external support.

Follow Lane's demands for extreme asepsis.

The urgency of this last requirement, followed to the point of keeping even the gloved hands out of the wound, and not using the same instrument or sponge twice, is insisted upon by Lane himself as an essential part of his technic; is urged by all who have had any success at it in this country; and the neglect of it, by those who think Lane knows less than they do themselves about the technic of his own operation, is probably the cause of the rather large number of reported failures here.

John Rogers (45), in pointing out the necessity of employing Lane's full technic if we are to use his method at all, states that at Bellevue Hospital, when Lane's work was first published, nearly all cases were plated. The large staff of twenty surgeons, all competent, spent considerable time in removing the plates. Only one of the staff had a series of good results:—he had forty-nine successes in fifty cases. On comparing notes, it was found that he was the only one who had kept his fingers out of the wounds, had followed the whole Lane technic, and had used the entire Lane complement of tools.

One writer (37) raises the question of a possible electrolytic action if the plates are of a composite metal, or of different metal from the screws.

It is conceded, even by the supporters of the procedure, that operative treatment (39, 42) delays union, and does not shorten disability.

Bartlett and Hewitt (47) report a visit to Lane's clinic; also a series of experiments on dogs and patients, showing that it requires an average pull of ninety-six pounds to dislodge clean $\frac{3}{8}$ screws from dog bones when clean, and forty-two pounds when infected, after being in from one to seventy-one days. Longer screws are used in most human subjects, so the time is longer. Out of fifty-two human cases, five were compound. Of these, two gave primary union, two were infected, and one granulated over.

Blake (46) gives a thorough discussion of "Operative Treatment of Fractures," citing 106 cases of his own. He uses every form of material for internal fixation, preferring chromicized gut to any other material. He disapproves of the medullary dowel, but makes no mention of the living bone dowel of Murphy. He does not commit himself on the advisability of operating on compound fractures, stating that for obvious reasons (which are not obvious to me) such operations are not included in his list.

Scudder (48) says: "It must be kept in mind that a very definite indication for operation must be present before any individual case is submitted to the additional risk of incision and direct fixation."

Stimson (43, 44) takes the opposite view to that of Lane, and sounds a warning of the dangers of the open method of treatment, basing his opinions upon his own success with non-operative methods. He limits operative interference to a very carefully selected class of cases, such as when a fragment has been drawn into the muscle, and when the displacement in articular fractures may seriously interfere with the usefulness of the joint.

Sir William McEwen (49) smashes traditions by propounding a theorem which, if verified, will compel us to unlearn much before we can learn anew; and declaring that bone grafts *do* live, and are not simply matrices; that the osteoblasts used in regeneration are developed from preëxisting osseous tissues

and not from periosteum, and that periosteum is not essential to bone production. To prove this, he grew a long bone through a glass tube, from each end of the diaphysis, after removing a long segment.

On the heels of this, that brilliant originator, John B. Murphy, in his epoch-making papers now being published (50) takes exactly the opposite ground, and supports the accepted theory of osteogenesis. He also shows that he can, and the rest of us sometime may, unite broken bones by a living bone dowel, which does not act as a foreign body, but will absorb. He is quoted as saying that Lane plates nearly always require removal. In supplying a material which will never require removal, and which fits so firmly as to almost do away with splints, he is blazing a path into the future which the rank and file will follow with timid steps.

Since this paper was read, Dr. F. H. Albee has presented a technic in which a wedge of living bone is mortised into grooves cut in the ends of the fractured bone, in such a way that periosteum is continuous with periosteum, cancellated tissue with cancellated tissue, and endosteum with endosteum. This not only acts as a firm splint, but becomes an integral part of the bone itself.

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DISCUSSION.

DR. ANSEL G. COOK (Hartford): *Mr. President and Gentlemen:* I have not notes in my hand, but a copy of Dr. Crane's paper, which I have carefully read and am most happy to endorse. The subject of fractures is complicated, so many elements entering into it that no one mind can appreciate all cases. I think that there is a tendency to rely too much on the X-ray, to the exclusion of other means of diagnosis. I do not wish to undervalue the X-ray; but I think that it should not be accepted as the sole means of diagnosis. There is also a tendency in some hospitals to turn cases of fractures over to the Junior Assistant House Officer, which is not quite fair. I do not mean any hospital in particular; but I mean that people are apt to turn these cases over to the juniors.

DR. WILLIAM H. CARMALT (New Haven): *Mr. President and Gentlemen of the Association:* I also have had the satisfaction of reading Dr. Crane's paper before he read it here himself. I find in it nothing to criticise adversely and much that I want to emphasize. In doing this it is at the end of a career of some fifty years in the practice of medicine and surgery, during which this matter of the treatment of fractures has been ever present.

Dr. Cook referred to a practice that is severely to be deprecated; that is the turning over of the care of fractures in a hospital to the House Staff. I have never allowed myself, except in a few instances, to leave a fracture to the care of the House Surgeon; he reports it "all right," but he doesn't know, and I soon learned by sad experience the necessity of frequent and constant observations of the splints in fractures. They get misplaced without you or the patient knowing it. Eternal vigilance is the price of good results, and even then you do not always get them.

A word regarding the value of the X-rays and the necessity, if possible, of getting the X-ray pictures; but you must have the warning, also, that the X-ray is not a picture of the fracture. It does not necessarily show the fracture at all. It is a picture of the shadow. Most of you remember the figures we used to make on the wall with our fingers; shadows looking like a rabbit's head, a wolf's head, etc., how entirely unlike the shadow is to the thing that produces it. The shadow on the wall in no index of the position of the fingers. You must use your judgment not only in the X-ray picture and your interpretation of it, but in everything else. I have been disappointed, time and time again, when I thought that I had the fracture reduced, having taken the X-ray first, manipulated it from the knowledge thus obtained, taken an X-ray afterward, to find that I had not done much. You sometimes have to do it over again several times. It is all very well to say, "Put the fracture in place and keep it there"; but it is a pretty big job to do this, if you do not watch it all the time.

I want to emphasize, also, what Dr. Crane has said with regard to plaster of Paris. It is the most reliable thing that we have—it sets so quickly, and is so good in all respects. Even a compound fracture can be kept clean by the use of good fenestra at the putting of it up.

I must also emphasize what he said in fractures of the leg about the plaster including the whole limb. It must be not merely around the fracture, but include the foot, as well as the ankle; and, as the doctor says, if the knee is bent a little, one will get a better result than if you have it straight, and the patient is greatly more comfortable.

I must likewise emphasize what the X-rays have shown recently, the fact that so-called bone-sprains are, nine times out of ten, fractures. The bone attachment will give much sooner than the ligament itself, and the X-rays have shown a piece of bone attached to the tendon in a large proportion of cases. The X-rays have further shown that what we suppose to be a Colles' fracture of the radius is almost always complicated with some other lesion. Dr. Carl Beck of New York has demonstrated that a simple fracture of the radius alone is a very unusual thing. Hence, as Dr. Crane says, a sprain that is put up and treated as a fracture gets well a great deal better than one indifferently treated as a sprain. We have all had experience in treating sprains without fixation, and know what a long, tedious thing such treatment is. So much is this so that I have been in the habit of saying, "You would be better off, if you had a fracture." If you have a fracture, you put it up; if you have a sprain, you try to get along without splints, and have a more tedious recovery.

I must also emphasize what Dr. Crane has said with regard to getting the parts in proper apposition in cases of fracture of the humerus. It is the same with fracture of the neck of the thigh-bone below the trochanters, as it is with the fracture of the humerus. "If the mountain will not go to Mahomet, Mahomet must go to the mountain." If you cannot get the proximal portion down, put the distal portion up. Place the parts in apposition. I remember very distinctly a case of fracture of the femur just below the trochanters, in which the upper fragment came right up, as it naturally would. I tried to get it down, but could not; so I put the thigh up in a position of extreme flexion, and the fracture repaired itself very quickly.

I wish that Dr. Crane, when he closes the discussion, would tell us a little more about Crile's article. I must say that I am not familiar with it. The idea that fright is an important factor in the causation of non-union is a new one to me, and I should like to know more about it.

I wish to emphasize, also, what he said about the cleansing of the wound in open fractures—just as though a little extra cleansing did any harm. On the contrary, the cleaner you get it, the better; and

that brings me to the question of Lane's plates, in the use of which the importance of keeping your fingers out of the wound is to be well borne in mind. I want to take issue with Dr. Murphy for saying that no bone-splint, wiring or suturing should ever be done as a part of the procedure in compound fracture. That is wild. It depends upon whether you can get the parts in good apposition or not. If you cannot get the fragment back otherwise, even if you have to put your fingers into the wound, you must do so. I have had no experience with Lane's plates. They have come into use since I left the hospital, and I do not know much about them; but I understand his theory perfectly well, and I think that it is not fair to compare with his the results obtained by somebody else, who does not follow his technique, and says that he does not get good results. It is the same thing as Dr. Roswell Park, in a communication before our County Medical Society here, spoke of in the use of immune serums in the treatment of infection, following out every detail of the treatment. Men are apt to think that they can improve a little on it, and do not do it. If you follow an operation, do exactly as the man gave it; or you are not treating him fairly.

To cover all the good things in the paper would be to read the paper over again.

DR. PATRICK J. CASSIDY (Norwich): I wish to speak of Dr. Crane's paper as an educational paper. I wish that it could be published in such a way as to be read by the general laity of my county, New London County. It is instructive, because it advocates, first of all, the use of the X-ray for diagnosis.

It is also instructive because it impresses the fact of the necessity of fixation, and also the difficulty of fixation. I speak of these two points, because in our part of the State we suffer from the presence of a "natural bone-setter." I do not believe that there is a fracture-patient in New London County that did not, at one time or another, see the natural bone-setter. I can say, from my own knowledge, that I have seen five or six cases impaired vitality—impaired life—from visits to the natural bone-setter. I have seen cases of death follow compound fracture because the opinion of the regular practitioner was not considered as being better than that of the natural bone-setter. In spite of the fact that we are supposed to practise medicine with the best interests of our patients at heart, I am very sorry to have to confess that, knowing that the natural bone-setter is going to be called in some time or another, most of the medical men in the county who see a fracture or a sprain, scamp it. They do not leave it to the Junior Resident Surgeon; they just simply scamp it. I do not. I take my chances. If they go to the natural bone-setter, all right; they may go.

Then, in regard to the point of treating every sprain more or less as a fracture, I would say that this is a thing that I worked out without the aid of the X-ray some time ago; and later, with the aid of the X-ray, I had my conclusions verified. As I said in the beginning, I wish this paper could come into the hands of the laity in our part of the country.

DR. ERNEST H. ARNOLD (New Haven): *Mr. President and Gentlemen:* In a limited experience of this type, the fortunate and unfortunate personal results impress themselves more vigorously. Therefore, if I have a personal note in my remarks, you will understand that it is not vanity that causes me to utter it, but simply the fact that I have had the matter brought home to me.

As to the use of the X-ray, I should say that one should not use it at first, but should try to make the diagnosis without its use. The diagnosis reached should be put down in writing, so that one may be self-convicted of errors; and then the X-ray should be used. This will give you tactile sense, comparing your results in diagnosis with the results shown by the X-ray. The matter is sometimes misleading in its statements, especially to those not used to reading the pictures. However, with improved technique, the error can be minimized so that they are very reliable. The findings of the X-ray are not positive always, but sometimes negative and helpful thereby.

You have a supposed case of Colles' fracture. It is confined between two splints. This is always wrong, producing contracture and atrophic arthritis, which maims the hand for use. I see at least one case of this kind every year. It is very disappointing to have the X-rays tell you that there was no fracture whatever. This is one of the discouraging things in the failure to make a diagnosis. It is my rule not to undertake to treat any case of fracture without an X-ray taken at some time or other. In private practice, however, I sometimes have to do so at the outset. It is my custom to put such fractures up temporarily, and then hire a carriage or ambulance and send these patients to a place where the X-ray may be taken just as soon as it is possible to transport them. It is also comforting to have a case like this: A practitioner comes to you in great perturbation of mind, stating that he has a patient with a simple fracture of the forearm; he finds, after three weeks, that the fragments are badly over-riding, although supposedly set very well. The plate shows that it was a so-called green stick fracture, and does not over-ride at all. All that it needs is to give it a little list sideward.

The X-ray, as I had occasion to point out in a recent report, does away with the conception of green-stick fractures nearly altogether. I have never seen a case, although there may be such. Almost all are complete fractures of the bone without rupture of the periosteum. Plaster of Paris is still one of the best means of fixation. I would call

attention to the fact that all splints should go over two joints. In the application of splints to such intractable cases as fracture of the femur and humerus if you saw through the cast in circular manner and extend the arm or leg reapplying plaster over the cut, you usually get good results. Ten weeks' confinement is none too long in a case of fracture of the neck of the femur. Not only does the proximal fragment become atrophic, but you have atrophy in the neck itself. The fixation of the thigh in abduction with a long spica allows us to get the patient up directly, thereby avoiding edema in the lungs and bed-sores.

DR. D. CHESTER BROWN (Danbury): I am sorry that Dr. Crane did not have an opportunity to finish his paper. I should like to know whether he looked up the logical conclusion regarding these fracture-sprains. Some of our unfortunate results in them are due to a large extravasation of blood in the joint, so that there is imperfect replacement of the ligament. Rosse states to-day that he believes that every dislocation is a fracture-sprain, and this is logical. If that is true, is it not good treatment to bring back your fragment and fix it, as you do in Lane's plates, relieving the joint of the tension and of the material accumulated there by the amount of hemorrhage that occurs, giving a good drainage, and then fixing your fragment of bone to the larger portion? I had the opportunity of seeing Rosse's original plates. They are not very big fractures; but it is so easy, with a big bone, to bring your fragment into apposition and fix it with some metallic pin, and you do not get a relaxed ligament and a loose joint afterward.

DR. DANIEL F. SULLIVAN (Hartford): The comment of Dr. Cook, of turning over fractures, brought to the local hospital, to the house interne, may be more significant than some think. The surgeon who assumes charge of the treatment of a fracture may leave something out, just as the surgeon, in treating the abdomen, may leave something in. A law suit on your hands for lost sponges, or a useless limb, following your treatment, may inspire a deeper meaning of Dr. Cook's statement. The point in the paper appealing most to me is the treatment of compound fractures, viz.: It is unwise to leave the wound without careful cleaning and scrubbing, etc. Now this is just exactly what should not be done. Any needless disturbance given the injured tissues by soap and brush defeats the very end the surgeon is working for, and why? Because the lymph which nature has poured into the traumatized tissues, cofferdaming the avenues of infection, is destroyed. Connecticut is a tetanus zone and we all know we have a greater number of tetanus cases than we look for following compound fractures. The great amphitheatre for the treatment of compound fractures is found in Rotterdam. More cases of this nature are treated in the municipal hospital of this Dutch city

than in any other hospital in Europe. Excellent results are claimed and tetanus is unknown. This appears more striking when you consider the inefficient covering of wooden shoes of the people, and the necessary exposure of feet to injury and infection. The method employed in care of these cases is interesting. As soon as a patient suffering with compound fracture arrives, Dr. Van Stockum, the surgeon in charge, at once immobilizes the limb; does not soap and scrub and shave as we have been in the habit of doing, but immediately pours into the injury a plenty of balsam of Peru. Pours in, mind you; he does not stick in any gauze to the wounded structures. The chemical action of the balsam, if it be chemical, is not understood. So striking have these uniform results been during the last twenty-five years that Dr. Van Stockum was invited to read a paper on his treatment of these cases before the surgical society of Paris in 1909, and since then this simple method is nearly universal. The caution may be added of keeping fingers out of wound, do not remove splinters of bone with periosteal attachments, and, as Dr. Murphy of Chicago says, never attempt using a Lane splint on these cases. If you do, your neighbor will remove it. I believe this last statement to be sound doctrine and wise to follow.

DR. AUGUSTIN A. CRANE (Waterbury): I cannot answer Dr. Carmalt's question about Crile's article. I got the information second-hand.

I sympathize with Dr. Cassidy's difficulties in referring fractures to a specialist, so-called, and know what the feeling is. If I were practising in Norwich, I should put fractures up in reinforced concrete, instead of plaster of Paris, on the first visit.

Dr. Brown has the advantage of me in having seen Dr. Rosse's original plates. None of the fractures that I saw would give enough body to get hold of with a pin or dowel or clasp. Those that I have seen, unless the joint was much distended with blood, could be retained by pressure and immobilization.

Dr. Sullivan spoke of the inadvisability of washing compound fractures. I did finish the paper; but I omitted, here and there, in order to make sure that I should finish it within the allotted time. One thing that I omitted was a caution from Dr. Beck of Chicago, on the subject of the treatment of compound fractures. I had already stated his belief that they should not be cleansed. The quotation that I omitted to read was, "The surgical busybody, with soap and brush, has killed more fracture patients than all the dirt carried into them at the time of injury."

The Etiology of Membranous Pericolitis and Lane's Band.

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Some four years ago, under the name of membranous pericolitis, Jackson called attention to what he believed was a distinct form of pericolitis, a definite pathological and clinical entity. This condition is characterized, according to Jackson, by the formation of an entirely new layer of vascularized peritoneum, which is found usually on the ascending colon, often extending up to the hepatic flexure and over onto the transverse colon. In a second report, the original account of the condition has been amplified by the description of an autopsy specimen by Hall, from whose notes the following points are excerpted:

Running from a point near the hepatic flexure to a point three inches above the caput cæci and extending from the parietal peritoneum to the lateral and ventral aspects of the colon, is a thin vascular veil with long, straight, parallel, unbranching vessels. The appendix is not implicated in any way. With the blood-vessels are long shining bands of connective tissue which gradually broaden and spread out in slight fan-shaped attachments on the anterior and inner surfaces of the colon. The latter is freely movable beneath this membrane. On section, there is no evidence of inflammation, but one finds numerous endothelial line spaces which suggest a chronic lymph stasis.

While we owe to Jackson the recognition of the possible pathological significance of these membranes, as well as their first accurate description, they have undoubtedly been seen by other observers previous to his report. To Virchow, Hofmeister ascribes the first description, while it is certain that Binnie and Lane had also observed similar structures prior to Jackson's paper.

Since that time cases of so-called membranous pericolitis have been reported by Hofmeister, Connell, Crossen, Pilcher and Gerster, as well as an additional series by Jackson.

The symptoms with which these patients, reported in the literature, suffer may, in general, be classified with those that are already familiar to us in certain types of chronic appendicitis. Pain is ordinarily the thing which makes them seek medical advice. It varies in intensity from feelings of discomfort to a more or less continuous pain on the right side, usually most marked in the right lower quadrant. It is liable to exacerbations and not infrequently accompanied by colic. Tenderness is usually greatest over the cæcum, although palpation may elicit more or less definite response over the entire right side of the abdomen. The patients are usually constipated, especially in advanced cases, although Gerster's series contains several with diarrhœa. The stools may contain mucus, and not infrequently there are gastric symptoms in a sense of fullness after meals with eructations similar to those in appendiceal dyspepsia. Some of the cases have been in undoubted abdominal neurasthenics.

ETIOLOGY.

Concerning the etiological factors involved in the formation of these veils, there have been numerous speculations on the part of those who have reported cases. Jackson, to whom we owe our recent interest in them as possible pathological entities, does not venture to ascribe a cause to their formation.

Lane, in discussing the fixation of the cæcum, describes acquired lateral adhesions passing in from the abdominal wall to the cæcum, ascending colon and, in some instances, the proximal portion of the appendix. He states that "The portion of the cæcum above the brim of the pelvis, together with the ascending colon, is retained in a position of abnormal fixity to the posterior wall of the abdomen. This is affected by the development of adhesions between the outer aspect of the large bowel and the peritoneum covering the abdominal wall in its vicinity. In advanced cases, these adhesions are supplemented by a mesentery in which vessels of some size are contained. As a rule these adhesions merely fix the bowel, but occasionally

they constrict its lumen very materially in one or more situations and render it liable to become obstructed. Not only do these adhesions anchor this part of the large bowel, but they also bind down to the iliac fossa a portion of the appendix." It is quite certain from this description that the acquired adhesions and mesentery of Lane are identical with the veil described by Jackson.

Binnie considers the membrane to be due to a primary colitis, and that the appendix, if involved, is secondary. Hertzler views them as inflammatory in origin and secondary to affections of the appendix or gall-bladder. These views coincide with those of Hofmeister, who, likewise, looks upon them as structures arising from inflammation in adjacent organs, such as the duodenum, biliary passages, appendix or gall-bladder. Connell, on the other hand, does not regard them as inflammatory in origin, but due to ptosis of the cæcum.

According to Charles Mayo the veils result from "a late rotation of the bowel and descent of the cæcum from its hepatic position after the formation of the parietal portion of the peritoneum in the infant. The cæcum burrows its way into position, as it were, through the peritoneum."

In a recent communication Pilcher expresses himself as follows: "As to the etiology of these films and bands, that view which considers them to be the result of long-continued or oft-repeated mild infections of the peritoneal coverings of the cæcum and appendix transmitted through the intestinal wall seems to me most probable," while Gerster, the latest contributor on the subject, expresses the view that, "The peritoneum reacts to the infectious processes ordinarily associated with chronic colitis, by the formation of characteristic vascularized transparent membranes (pseudoperitoneum), which take their origin along the external aspects of the cæcum, ascending colon and hepatic flexure."

Harris believes that membranous pericolicitis or Jackson's membrane is of inflammatory origin and describes its formation as follows: "In the early stages of this condition, the wall of the ascending colon presents the appearance of being thick-

ened or edematous, and, on close inspection, the visceral peritoneum seems to be raised from the bowel-wall by reason of the presence of a subendothelial hyaline-looking substance or exudate. The endothelial layer of peritoneum, which is slightly movable on the bowel-wall, then forms another layer of endothelial cells. A raised thin, transparent membrane remains attached to the bowel at the longitudinal bands, at which point small blood vessels may be seen entering and spreading over the thin membrane. Later this membrane is almost certain to acquire attachments to the anterolateral parietal wall. In older cases, the membrane becomes thicker, particularly along the line of the blood vessels, which also become larger and more numerous. In still later stages, the membranous formation becomes more intimately attached to the ascending colon. It extends from pouch to pouch of the colon and on contracting, as all such new formations do, draws the pouches together and puckers them up, so as practically to obliterate them on the external surface of the bowel. In this stage the membrane can be removed only with difficulty and leaves the bowel raw and bleeding."

From Bevan's communication upon Dilatation of the Large Bowel, the following paragraph may be quoted to give his views on the origin of these membranes: "The surgical type of this condition (i. e., chronic constipation with dilatation and atony of the cæcum) is a very different matter. Here we have the following sequence of events: constipation, colitis, pericolicitis, adhesions, colic, obstruction. There are the cases reported by Crede and Lauenstein as chronic colic due to adhesions, by Jackson as membranous pericolicitis, by Gerster as colitis and pericolicitis. These are the cases in which radical surgical measures, such as removal of bands and membranes, anastomoses and resections, are not only warranted, but are demanded and are often curative."

An analysis of the views expressed by the various contributors to this subject is interesting, for, while there is no question that they are discussing the same structures, yet there is a wide divergence in their opinions as to both the origin and

nature of the membranes. Suggestions varying from folds of peritoneum caused by the cæcum burrowing behind the parietal peritoneum in a delayed descent (Mayo), and acquired adhesions to prevent the ptosis of the cæcum (Lane), to various inflammatory or infectious etiological factors (Pilcher, Hofmeister, Binnie, Gerster, Harris, Bevan), have been given as the essential basis of their formation. As it is important for us to know both the origin and the pathological significance of these veils, we have accordingly made it a routine to study carefully the cæcum and ascending colon, with this object in view, whenever we have had access to the right half of the abdomen.

During the past two years I have met with some 29 instances where pericolic membranes of one form or another were found at operation. A detailed account of the histories and findings in these cases would make this paper too voluminous, so simply a summary of the results obtained by a study of these patients will be presented. The pericolic membranes vary widely in their position and distribution, but in almost every instance their physical characteristics are the same. These fine, filmy structures were well described by Jackson in his first and second papers and to his description of their gross appearance there is little to be added.

So far as their general characteristics are concerned, they are fine, delicate membranes extending over the surface of the first part of the large intestine, which is freely movable under them. They give, as Hall has aptly pointed out, the impression as though the colon were placed in a thin diaphanous bag slightly too small for it. The cobweb veil is very thin and is covered by glistening peritoneum and contains numerous characteristic parallel blood-vessels, which run for a considerable distance without anastomosing. They originate from the vessels of the parietal peritoneum and usually run downwards and forwards to terminate by communicating with the vessels in the muscular coat of the intestine. The attachments of the membranes to both the parietal peritoneum and the intestine are extremely loose and elastic. Here and there, there are firmer strands of connect-

ive tissue and the veil terminates usually by spreading out in fan-shaped processes or extensions as it insensibly loses itself in the peritoneal surface of the intestine. The membranes are paper thin and only now and then do they show any deposits of fat. The impression given by them is quite different from that ordinarily conveyed by pathological adhesions. They are neither as opaque nor as avascular as adhesions, and they have, in general, a more or less regular distribution. They are, moreover, much thinner than the parietal peritoneum, as is easily seen when traction is made upon them, for the parietal peritoneum that is pulled out at the points of attachment has the thicker, more opaque appearance that is always seen in hernial sacs.

The histological studies of Hall on this structure, while confined to a single specimen, are accurate and his conclusions that the membranes are not inflammatory seem quite justified.

So far as their distribution is concerned, we have found from our series of cases that they may roughly be divided into three groups. The commonest group is that where the veil extends from the parietal peritoneum along the lateral margin of the colon, particularly near the hepatic flexure, over onto the lateral and ventral aspects of the colon and cæcum. Often the caput of the cæcum is free, but they may extend downwards not only to the caput, but even cover the proximal portion, and sometimes the entire appendix as well.

Another type occurs lower down and extends from relatively the same part of the parietal peritoneum over onto the head of the cæcum and usually covers the proximal half and more rarely the entire appendix. Veils of this description do not, as a rule, extend higher up on the ascending colon.

The third type of veil, which is relatively rare, extends from the ventral aspect of the colon and passes over and is continuous with or apparently adherent to the omentum. In some cases, it may extend from the parietal peritoneum on the lateral wall of the abdomen over the ascending colon and then become continuous with the omentum, often holding the ascending and the first part of the transverse colon side by side with a sharp angula-

tion at the hepatic flexure if the latter happens to be long and looped.

Between these three main types of veil there may be intermediate stages or combinations of two types. In fact, each case differs somewhat from the next, but in any considerable number of instances, they will fall more or less naturally into these three groups.

Before we take up the consideration of the nature of these membranes it may be well to consider for a moment the usual peritoneal attachments of the colon and cæcum. In a large percentage of cases, these veil-like structures will be observed about the hepatic flexure, frequently shading off into the omentum, or else making up the supporting reflexion of the peritoneum which extends from the hepatic flexure and over onto the kidney. At this point it forms an almost distinct suspensory ligament of the hepatic flexure in most individuals. Likewise, along the lateral and posterior aspect of the ascending colon, tissue, similar in structure to the membranes, will be found holding it (the ascending colon) in place.

Turning, for a moment, to the embryology of this portion of the alimentary tract, the following brief account of the development of the topography and attachments of the first portion of the large intestine affords the only means by which the origin of these membranes can be explained.

After the reversal or rotation of the gut, the cæcum comes to occupy a position just under the liver about the final site of the hepatic flexure. When the rotation is complete, the mesogastrium balloons forward and the formation of the great omentum begins. This fuses later with the transverse colon and the gastro-colic omentum thus comes into existence. Usually this fusion takes place only along the transverse colon, establishing the more common relationships. Not infrequently, the omental attachments extend further to the right, even to the abdominal parietes. After the cæcum takes up its subhepatic position, there is a fusion between the peritoneal surfaces of the cæcum and the posterior abdominal wall, attaching the large intestine in its new position. As the cæcum descends with the subsequent

formation of the ascending colon, the posterior surface of its mesocolon also becomes adherent, thus obliterating the free mesentery of this part of the large intestine. This brief description of the development of the attachments and position of the first segment of the large bowel is of the more frequent types, but here, as elsewhere in the body, we have frequent variations in form, connections, and relationships, as can be seen by studying any large series of cases. Variations in the positions, attachments, time of rotation, and descent are particularly common in this region, as is shown by Smith's study of the relationship of the large bowel in one thousand infants. Now, concerning the nature and position of attachments of the colon to the abdominal wall, we have no careful anatomical studies. Furthermore, embryologists do not possess much detailed information concerning the exact nature of the secondary fusion that takes place between the various layers of the peritoneum, such as the obliteration of the mesentery of the ascending colon and the formation of the attachments of the first part of the large intestine in its final position.

With the usual topography and peritoneal reflections of this part of the large intestine, we are all familiar, as this is what we are accustomed to call the norm. In reality, however, this is only the predominating type and there are series of less frequent forms which, however, should not be looked upon as pathological, but rather as variations common enough to classify as normal. A study of these less common types, particularly during the stage of their formation and with particular reference to the attachments of the cæcum and adjacent parts of the intestine, may throw some light upon the question of these pericolic membranes.

Through the courtesy of my colleague, Prof. Ferris, I have been able to dissect a series of human embryos and two infants at term and have found conditions which show clearly that these veils are embryonic and normal structures and are not due to the organization of an inflammatory deposit or series of mild infections originating from a chronic colitis.

In the first preparation, and embryo $15\frac{1}{2}$ cm. long, nape-breech measurement, the cæcum (Fig. 5) is still undescended, but the fusion between it and the parietal peritoneum has occurred. Fine veil-like attachments are present, running from the parietal peritoneum just beneath the liver and over the kidney onto the ventral aspect of the cæcum, where they are lost on the meso-cæcum. This is an important stage in the development of these pericolic membranes, for it represents an excessive degree of fusion of the rotated cæcum with the parietal peritoneum. The usual attachments between the visceral and parietal layers at this point are confined to the posterior aspects of the cæcum and the adjacent portion of the parietal layer. In this case, the appendix lies free in the ileocæcal angle and the terminal ileum is provided with a free mesentery, the posterior leaf of which shows no fusion with the peritoneum.

In an embryo 22 cm. long, nape-breech measurement (Fig. 6), partial descent has occurred. Like the preceding specimen, there are certain atypical and variable features to the attachments between the cæcum and parietal peritoneum. The fusion is most marked at the site of the future hepatic flexure and along the partly formed ascending colon, where the very delicate adhesions marking the fusion of the two layers extend from the parietal peritoneum onto the lateral and ventral surfaces of the colon. The caput cæci is free, but the appendix, caught in these new attachments, shows the effect of the partial descent by being drawn up and kinked along the ventral aspect of the colon with its tip free. It is important to observe that these new-formed attachments which run transverse to the long axis of the colon in the preceding stage, are now drawn partly downwards and are somewhat thinned by the descending cæcum. An effort to lift the terminal ileum reveals that it, too, has partaken in the process of fusion in having the posterior leaf of its mesentery and the posterior aspect of the intestine itself united to the parietal peritoneum by fine, delicate attachments similar to those joining the colon and peritoneum. This is important to bear in mind for, as will be shown later, it represents in its simplest embryonic form a Lane's band.

In an infant at term (Fig. 7), the ordinary conditions found in adult life are present so far as the topography of the cæcum and colon is concerned. Descent has occurred and the omentum is attached to the transverse colon some distance from the hepatic flexure, but a thinned-out portion of the omentum extends over the ventral aspect of the colon as far as the hepatic flexure. Along the lateral margin of the ascending colon, extending from the adjacent portion of the parietal peritoneum and having all of the pericolic veils, are loose membrane-like attachments, the direction of which is now downwards, marking the course of the descended cæcum. The terminal ileum is perfectly free with a mobile mesentery and the appendix is in no way involved in the process of fusion.

Another variation in the usual form of fusion is shown by an embryo 24 cm. long, nape-breech measurement (Fig. 8), where the cæcum is still undescended but is fused posteriorly to the parietal peritoneum over the kidney which can be seen just below the liver and above the cæcum. In this case, no attachments in the form of embryonic membranes extend over the ventral aspect of the colon or cæcum. The appendix, however, is involved in the process of fusion and is attached to the peritoneum just over the kidney, where it shows the effect of the beginning descent in being drawn up and kinked. As is the case in Fig. 6, the tip of the appendix is free, a condition most frequently found in adult life when the appendix is covered by these pericolic membranes.

From a study of these three specimens, it is perfectly clear that unless we accept the unproven theory of foetal peritonitis, these stages indicate the evolution of the adult pericolic membranes of the commoner type, such as are shown in Figs. 1, 4, 10, and 13, which represent simply a more extensive form of the normal connections between the rotated intestine and the posterior portion of the parietal peritoneum. Usually the fusion takes place only in the approximated portions of the peritoneum and is probably due to some specific chemiotactic action, inasmuch as other parts of the peritoneum at these stages of embryonic life do not participate in the process. At times,

however, the fusion is excessive and attachments are formed with the cæcum in the subhepatic position that extend over onto the lateral and ventral aspects of the cæcum and embryonic colon. Given these attachments, the subsequent descent draws them out into the thin veil-like structures that have been described as membranous pericolicitis. Both the veils and the parallel vessels in them indicate, as it were, the path of the descent. This process can be appreciated even more readily by reference to the accompanying schema, where the change in position of the cæcum involved in its descent would draw out these fine embryonic adhesions into the form of a veil.



FIG. A.



FIG. B.

FIG. A.—The black portion of the figure represents the cæcum in its subhepatic position after rotation. The heavy lines the attachments to the parietal peritoneum such as are shown in Fig. 5. It is perfectly clear that subsequent descent would draw out these fine attachments into the form of a veil indicated by the lighter lines.

FIG. B.—The black portion of the figure represents the cæcum in the subhepatic position, with the omentum attached to it and the parietal peritoneum indicated by the heavy black lines. Descent draws out and thins these portions of the omentum into the form of a veil which is continuous with the parietal peritoneum on the one hand and the omentum on the other, as is indicated by the lighter lines.

In the series of embryos studied, another infant at term (Fig. 9) throws some light upon the etiology of those veils of the third type which are continuous with the omentum. In this specimen, the following relationships of the cæcum, colon and

omentum may be observed: the omentum, with its usual attachment to the transverse colon, extends lateralwards over the cæcum and is attached to the parietal peritoneum adjacent to it. The appendix is free and of the conical infantile type. The fusion between the posterior aspect of the cæcum and parietal peritoneum has taken place. It must be perfectly obvious that subsequent descent of a cæcum with such omental attachments must give rise (in adult life) to the form of veil shown in Fig. 3, where it extends from the parietal peritoneum over the colon and is continuous with the omentum along its median border. The development of this type of veil may be more readily appreciated from the schema shown in Fig. B, where the superimposed drawings of the earlier and later stages indicate how descent draws out the variable embryonic omental attachments of the cæcum into a pericolic membrane.

These preparations are taken from a relatively small series of embryos, which only serves to emphasize the frequency with which these veils may occur. They naturally vary a great deal in their distribution and extent, but all of those found about the cæcum and ascending colon develop in the manner just described. Surgeons will recognize in these cases where the appendix is involved in the process of fusion, types of appendices which, in adult life, have hitherto been looked upon as resulting from chronic adhesive appendicitis, but which are, in reality, organs that are covered by an embryonic membrane and not infrequently drawn up and kinked during the descent of the cæcum. In such cases, the cæcum and colon may be free or more frequently involved in the smaller second type of veil. To recapitulate, it will be clearly seen from a study of these specimens, that, after the rotation of the gut, the cæcum becomes attached to the peritoneum of the posterior abdominal wall just under the liver and over the kidney. The precise nature of these secondary attachments has not been worked out by embryologists. In some instances, they are more extensive than in others and may extend out over the surface of the cæcum or ascending colon and, with the subsequent descent, these new-formed connections between the visceral and parietal peritoneum are drawn out in the form

of a thin veil, carrying with them their blood-vessels, which take a long unbranching course from their origin on the parietal peritoneum downwards and forwards onto the cæcum or colon, where they communicate with those of the intestinal wall. These secondary unions between the two layers of the peritoneum usually spare the cæcum and extend onto the colon, which gives rise to the commoner form of veil (Fig. 1). Occasionally, the cæcum and even the proximal portion of the appendix or, still more rarely, the entire appendix is covered. In such cases, we have the extensive veils which embrace the entire first portion of the large intestine with the appendix drawn up in the process of descent (Fig. 10). In still other instances, the attachments are confined to the region of the cæcum and appendix and thus we have the formation of the veil which simply covers the caput cæci (Fig. 2) with the usual posterior attachments extending up behind the ascending colon.

As there are variations in the form of the secondary attachments between the colon and the peritoneum, so also does the extent of the fusion between the part of the posterior mesogastrium which gives rise to the omentum vary within very considerable limits. Sometimes, the embryonic omentum reaches out lateralwards and fuses with the cæcum before its descent and not uncommonly extends onto the parietal peritoneum. When such a secondary fusion takes place, the cæcum, in its descent drags down the omentum with it and gives rise to that form of veil (Fig. 3) where it is continuous with the omentum along the medial aspect of the large bowel.

Not only from the appearance of the veils themselves, but from the conditions shown in the human embryos and infants just described, it is clear that these pericolic membranes are not the products of inflammation, nor are they the residue of repeated attacks of colitis. It is likewise clear that the view which regards them as the result of a burrowing of the cæcum behind the parietal peritoneum cannot obtain. They represent simply either more marked attachments of the large intestine to the posterior abdominal wall or else, in some cases, a more extensive fusion of the omentum to the colon, which is dragged down with the

descent of the cæcum and gives it an attachment on the ascending colon continuous with an embryonic membrane.

SYMPTOMS.

The question of the greatest importance from a clinical standpoint is whether or not these embryonic membranes are ever responsible for symptoms. While, in the great majority of cases, they are not the cause of any trouble to their possessor, I think there is no question, however, that in certain instances, either alone or in combination with other circumstances, they may give rise to symptoms of a very definite nature which are not infrequently either confounded with or associated with chronic appendicitis. When the veils are extensive and badly placed from a mechanical point of view, they may cause obstruction, especially if any degree of ptosis is present. It is not impossible that they may become somewhat thickened as a result of chronic colitis. This is indicated in the denser strands of connective tissue in some veils, associated with distention of the cæcum, exaggerated or irregular sacculation of the colon, and the unrolling of the intestine after such veils are incised. Veils continuous with the omentum may, if the transverse colon is redundant, hold the hepatic flexure in acute angulation. Patients with such membranes may suffer, not only from the mechanical interference with the intestinal circulation, but may have sensations of pain and distress on the right side more or less exacerbating in character and often show on palpation distinct tenderness over the ascending colon well above the appendix and cæcum. In three instances, my cases have shown points of tenderness over the cæcum or in the pelvis on the right side, as well as marked reaction high up in the flank. In these cases, the chronically inflamed appendix was found hanging over the brim of the pelvis and a well marked veil on the ascending colon. One instance was in a child of 12, the second in a youth of 18, and the third in a very well nourished woman of 29. In these cases, there was no ptosis; no question of involvement of the kidney and ureter, and no chronic colitis. None of the patients was neurasthenic. There could be no other interpretation of the symptoms and find-

ings at operation, except that the flank pain was due to the constriction of the embryonic membranes. Incision of the veils relieved all three of the cases. That such symptoms may follow their presence is even better shown in the instances reported by Jackson and Connell in which simple appendectomy gave no relief, but where reoperation and removal of the veils accomplished the desired result. A patient upon whom I operated some time ago emphasizes this occasional association of the membranes with symptoms. For years she had suffered with pains of varying intensity on the right side over the cæcum and ascending colon. She was operated upon in the fifth month of a pregnancy complicated by multiple myomata, one of which was strangulated. After the hysterectomy and appendectomy, her condition did not warrant any further interference, so the well marked embryonic veil covering the cæcum and ascending colon was left undisturbed. The appendectomy has had no influence whatever upon the pain on the right side although in other respects she is quite well.

Embryonic veils which embrace the appendix usually kink it and probably are responsible for many of the cases of chronic appendicitis in which they occur. Veils of this type have usually been interpreted as adhesions about the appendix resulting from previous infections. Most operators have frequently been surprised to find a bound-down, kinked and adherent appendix in a case that has never had an acute attack. In such instances the adhesions are usually these embryonic membranes. I have seen two cases where the appendix was constricted and partly obliterated at the point of attachment of a veil, which led to an acute infection of the appendix from the interference of its drainage into the large intestine.

We have come to suspect the presence of these veils as the cause of symptoms in these cases which complain of pain in the right side, usually most marked in the flank and right lower quadrant, which have never had an acute attack of appendicitis and in which the possibility of renal and ureteral involvement can be ruled out. Most frequently, such patients complain of chronic obstruction, which usually intensifies their symptoms.

TREATMENT.

Several suggestions have already been made for the treatment of these pericolic membranes. By some, the veils have been stripped off and the colon denuded of some of its peritoneum in consequence. Another suggestion has been to dissect off the veil and use it as a strand to support the cæcum from sinking into the pelvis. Lately we have simply incised the membrane along the lateral border of the colon and allowed the intestine to unroll and become free. In our first few cases, when we were under the impression that the membrane was inflammatory, we stripped the veil, but later confined any operative interference with it to those cases only where we felt that it was responsible for pain and discomfort or else was offering some mechanical obstruction to the intestinal current. In any case, incision is all that is indicated, for any obstruction can be relieved in this way. Stripping leaves a denuded surface which may lead to the formation of adhesions or cause, in healing, the formation of a new inflammatory membrane which might be worse than the embryonic veil. In those cases where the membrane is continuous with the omentum, the operator may free the omentum by incision and ligation of the bleeding points. By far the best treatment in the majority of cases will be to let them alone, for it must not be forgotten that these are normal embryonic structures of quite common occurrence and they should not be interfered with in the absence of definite indications for their incision or removal. Furthermore, it is especially important to be cautious in attaching any pathological significance to structures which may be simply more or less uncommon anatomical variations of the normal attachments of the colon.

LANE'S BAND AND KINK.

In recent years, everyone has become familiar with the work of Arbuthnot Lane on chronic constipation and the careful study he has made of the mechanical factors that interfere with the fecal current in the intestine. Various aspects of this problem have been discussed by Lane in an interesting series of papers. The great frequency of chronic appendicitis and the association

of the disease with chronic obstruction have centered interest more or less upon the band and kink first described by Lane in the terminal portion of the ileum. This condition can best be explained in Lane's own words: "There develops on the under surface of the mesentery of the last few inches of the small intestine a new band, which at first forms part of the under surface of the mesentery. Later it forms a ligament distinct from the mesentery. This ligament contracts and deforms the ileum, producing a kink or obstruction of this portion of the intestine, especially in the erect posture of the trunk. In consequence of this kink, the small intestine becomes very much dilated and this dilatation may extend up as far as the pylorus. The symptoms produced by this obstruction are superficially very much like those of appendicitis and, in consequence, a large number of normal appendices have been removed to bring about a cure of symptoms resulting from this obstruction, needless to say, without any particular benefit to the patient." Lane, himself, ascribes the formation of the bands to ptosis of the cæcum, a tendency which crystallizes the lines of strain into peritoneal adhesions resulting in a kinking of the gut and a rolling of the intestine on itself. Since the appearance of Lane's papers, a number of observers have reported cases and offered suggestions as to the possible etiology of the condition. Martin, who has studied the problem, reports the results of his investigations as follows: "From a somewhat careful observation of a limited number of cases, I have concluded that the kinking of the ileum within four inches of its cæcum attachment instead of elsewhere, is due to the fact that the ileum at its termination in the large bowel possesses an extremely short mesentery, viz., from one to two inches. Given this comparatively fixed portion of the compressible tube, there are two factors which lead to its distortion: (a) A too movable and displaced large bowel, and (b) an abnormal disposition of the remaining portion of the small bowel or other viscera." Martin does not think that chronic inflammation of either the appendix or adjacent viscera has any particular influence on the formation of these bands. Charles Mayo, also a contributor to this subject, states that: "During the past two years we have

observed many cases in which there was a definite kink in the ileum within a few inches of its termination. The ileum was rolled over and fixed upon its mesentery, evidently a condition of inflammatory origin. Sometimes these adhesions, with resulting bands of peritoneum causing a kink, appear to be of congenital development because the condition has been reported in children without evidence of local inflammatory cause. It has been observed that when adhesions were present, or when the peritoneal bands were greatly thickened, the appendix also showed chronic inflammation which was apparently the source of the peritoneal thickening. The relief afforded by freeing the bowel of the adhesions indicates that this is undoubtedly a condition which has much to do with the ill health of the individual, even though the greater number of symptoms were not local but reflex in character, acting upon the stomach and intestines."

In the past two years I have met with 11 cases of Lane's band, of which 5 had, at the same time, embryonic veils upon either the cæcum or ascending colon. Of the 11 cases, 8 had marked kinks and the remainder were slight and not associated with any evident obstruction to the lumen of the small intestine. In the gross characters of the bands, none of them looked like acquired adhesions. Some were thin and delicate like the pericolic membranes, while others were thicker and firmer although not of the same character as acquired inflammatory adhesions. On two there were secondary deposits, inflammatory in nature, resulting from attacks of appendicitis. For the most part they extend from the free border of the intestine opposite the mesenteric attachment onto the posterior leaf of the mesentery and thence, if that is short, to the parietal peritoneum over the psoas muscle along the brim of the true pelvis. The discovery of a marked band at autopsy in an infant 11 months old, where neither the illness nor the cause of death was in any way associated with the intestine, forced the conclusion already reached by Mayo that some of these cases were certainly congenital. During the study of the embryos with reference to the attachments of the cæcum and large intestine, a careful inspection of the terminal portion of the ileum was also made to determine just to what extent these

bands were present before birth and to see if any rational explanation of their formation could be found.

In this part of the alimentary tract, as in the first portion of the large intestine, there is a great deal of individual variation in both the relations and the attachments of the terminal portion of the ileum. In all of the embryos, except two, the terminal ileum possessed a free mesentery, but it varied considerably in length. In some cases it was short, while in others it was long and free. In almost all cases, however, on the posterior leaf of the mesentery, there was a point of reflection onto the parietal peritoneum over the psoas muscle or just over the brim of the pelvis, the exact point depending on the age of the embryo and the degree of descent that was present. This is well shown in one of the infants at term (Fig. 9), where the mesentery is free and long, but where the cæcum is not yet descended. On lifting the ileum to bring the posterior leaf in view, a distinct fold running from a point near the psoas up onto the posterior leaf is clearly seen. This is the condition which one finds in almost all adults, whether the mesentery is either short or long. In the embryo (Fig. 6) 22 cm. long with a partially descended cæcum, the process of fusion between the cæcum, colon and the parietal peritoneum had apparently involved the terminal part of the ileum as well, so that we have a well marked Lane's band at this stage of foetal life. As the free part of the ileum is lifted, the delicate attachments that connect the portion adjacent to the ileocæcal valve with the parietal peritoneum are shown. In this instance, union has taken place well down onto the intestine. In a second case, of an embryo (Fig. 8) 24 cm. long, where the cæcum is still undescended, a similar state of affairs is observed except that the posterior leaf is a trifle freer than in the preceding instance. The band was observed for a third time in the case of the 11 months infant noted above (Fig. 12), who died the day after admission to the hospital from cachexia, due to an ovarian teratoma. In this case, the cæcum was undescended, the appendix infantile, and there was a well marked embryonic band uniting the terminal ileum with the posterior peritoneum, almost obliterating the posterior leaf of its mesentery.

In these three instances, occurring in embryonic life and just after birth, we have not only Lane's band present, but also the explanation of its formation. The band is associated with the fusion that takes place between the rotated intestine and the parietal peritoneum. In all instances, it may not be the result of a direct fusion, for when an attachment takes place in embryos with a short mesentery between the posterior leaf of the mesentery and the parietal peritoneum, while the ileocæcal junction is still in the subhepatic position, the subsequent descent might tend, owing to the point of fixation, to shorten the posterior leaf of the mesentery and to roll the intestine on itself.



FIG. C.—Diagram A shows the terminal ileum with its mesentery cut in cross-section. The fine lines represent the embryonic Lane's band. Descent with the cæcum, indicated by the arrow, would tend, owing to the fixation, to roll the intestine on itself and possibly kink it (B).

It is probable that this condition is much more frequent than we suspect and that there are many cases where the possession of such a band is not the slightest inconvenience to its possessor. On the other hand there is no question that the presence of these bands may offer serious obstruction to the intestinal current, especially if it is associated with hyperdescent of the cæcum or a condition of acquired ptosis. I think it would be well for surgeons to recall that all cases of pelvic cæcum are not ptotic, for, as Smith has shown in his study of the conditions of 1000 infants, hyperdescent takes place in 10% of the cases and the cæcum lies in the true pelvis. Now, in patients with acquired

ptosis or those in whom the hyperdescent is excessive, or those in whom embryonic membranes lie over the cæcum or ascending colon in such a way as to offer obstruction, the presence of these bands may take on a definite pathological significance and become a potent source of delay in the passage of the intestinal contents, not only in a diminution of the lumen of the gut itself, but in the formation of a definite kink of the ileum as Lane has pointed out.

SYMPTOMS.

The symptomatology in our cases has varied from none attributable to the band itself, but where the disease was chiefly in the appendix, to marked cases with definite obstruction. The differentiation between the symptoms of an obstructing band and chronic appendicitis is often difficult or impossible, as Mayo has pointed out, when the two conditions occur in the same patient.

The symptoms that may be referred to the band are chiefly those of obstruction, which is usually chronic. The patients suffer from constipation, the bowels often moving only with the aid of catharsis. There are not infrequently attacks of colic which may be severe enough to simulate an early acute obstruction. In fact, two of my most marked cases had periods of acute obstruction lasting several days. One was operated on for the obstruction. The more usual complaint is one of continual distress or discomfort on the right side low down or about the umbilicus, with frequent severe attacks of pain and colic which are aggravated by the periods of constipation. There are also cases where the referred symptoms predominate and the patient complains chiefly of the distention and eructations of gas. These usually are worse some time after meals. They are, however, not like the characteristic hunger pains of duodenal ulcer. The frequent association of embryonic bands upon the cæcum or colon with kinked or chronically inflamed appendices makes a definite diagnosis of the band alone improbable in very many cases. The usual points of tenderness on the right side along the terminal ileum is not, as a rule, capable of being dissociated from the tenderness of the appendix.

TREATMENT.

The treatment that has been followed by all surgeons consists in an incision of the band along the mesenteric border of the intestine, allowing the gut to unroll and the kink to straighten out. This can be accomplished with the point of a sharp knife or by passing a pair of anatomical forceps under the band and incising between the blades. It is remarkable how the intestine will unroll and the kink disappear after the release of the constraining action of the band. Martin keeps his patients in the Trendelenburg position after the operation to prevent the reformation of the band by lengthening the posterior leaf of the mesentery and Mayo accomplishes the same result in some patients by smearing the denuded part of the peritoneum with sterile vaseline. We have counted on the usual post-operative distention of the gut to keep the released intestine from either kinking again or allowing obstructive adhesions to form over the area denuded of peritoneum.

EMBRYONIC BANDS ON THE GALL-BLADDER.

Another type of embryonic band which is familiar to anatomists and embryologists, but to which no one, so far as I am aware, has ascribed a definite symptomatology, is a small band like a mesentery which extends from the gall-bladder onto the transverse colon to become continuous with the omentum. It is thin, relatively avascular, and contains but little fat. In some cases the fundus is free and in others the mesentery extends well up to the tip of the organ. Attention has again been called to this omental mesentery of the gall-bladder recently by Rubin in his interesting paper on the functions of the omentum. He states that he has only observed the condition in children and infants where pathological changes are out of the question. Recently, I found in the same infant (who had died of an intercurrent disease) an example of this variation of the omentum attachment, with a Lane's band and undescended cæcum. It was apparent that this was simply an embryological band such as has been frequently seen and owed its origin to the fundus catching up a portion of the omentum as it grew out from the

common duct. A few weeks later, a patient entered the hospital with the following rather remarkable history:

The patient, Miss D., is an extremely intelligent young woman of 20. About three years ago she fell and received a blow on the abdomen just above the hip. Since that time she has had a constant pain on the right side which becomes very sharp and radiates to the right shoulder on any extra exertion, especially like jarring or twisting the right side. Indigestion or accumulation of gas in the intestines increases the pain in the side. On taking a deep breath a sharp pain is noticed in the right hypochondrium (patient points to the gall-bladder region). Recently she has much discomfort in the epigastrium, especially after eating, when she feels as though her stomach is distended with gas. Her bowels are more constipated, a condition which dates practically from the onset of the present illness. She has no nausea or vomiting, the attacks are not associated with fever or feelings of general malaise. The general physical examination is negative. There is no tenderness or fixation of the spine; sacro-iliac and hip joints negative. The abdomen is soft and everywhere tympanitic. Stomach tympany not increased. There is distinct tenderness on deep palpation over the gall-bladder. Along the right flank there is also a slight response to deep palpation. Over the region of the cæcum at Lantz's point there is an area of tenderness with a sharp muscle spasm on deep palpation. Rectal examination negative. The urine is clear and the kidneys are neither felt nor tender.

At the operation, a well-marked embryonic veil was found extending down from the parietal peritoneum near the hepatic flexure over onto the ascending colon and cæcum. The membrane embraced the proximal part of the appendix. The appendix was removed and the veil incised. An exploration of the gall-bladder showed an embryonic band like a mesentery extending from the cystic duct up to the fundus over onto the transverse colon, where it was continuous with the omentum. Its character was exactly like that of the one found in the infant. This band was incised so that the gall-bladder and colon were liberated. There was no question of any inflammatory reaction about the gall-bladder. It had a smooth and glistening peritoneum, was not thickened, and its contents could be squeezed by gentle pressure into the duodenum. It contained no stones.

This case presents many interesting features. The patient had carried the pericolic membrane and the mesentery of the gall-bladder from birth without symptoms until the time of her fall, when the supports of the large intestine were probably weakened so that the band about the colon began to interfere with

its function and a certain amount of traction was exerted on the gall-bladder by its omental mesentery when the patient took a deep breath or indulged in extra or unusual exertion. On such occasions the characteristic pain of the gall-bladder radiating to the shoulder would occur. Liberation of both bands relieved her of the symptoms completely. The patient had three points of tenderness, namely, the gall-bladder, the ascending colon and the appendix. Bands on the two former organs were responsible for pain and tenderness, while the chronic inflammation of the appendix was brought about by the extension of the veil over its proximal portion.

The conditions presented by these patients with embryological bands all simulate to a greater or less extent conditions that are familiar to us in chronic appendicitis. A differentiation between them is often difficult, and sometimes impossible, when the two conditions occur simultaneously in the same patient. The point to be learned is that a group diagnosis of chronic appendicitis will leave many unbenefited patients if the therapy is limited to an appendectomy. The day of inch incisions for appendicitis is over and every case of chronic appendicitis should have an incision large enough to afford an opportunity to explore the terminal ileum and ascending colon. Such an incision heals as strongly as a small one if it is properly closed. A patient who takes an anæsthetic is entitled to have a visual exploration of the accessible portion of the abdomen made to supplement the less accurate clinical and pre-operative methods of diagnosis and investigation.

The study also emphasizes that we should ascribe pathological significance to normal, but variable, structures with great hesitation. It is also essential to be familiar with the type variations of the different viscera. Difficulties in the interpretation of pathological conditions thus become simpler and the attempt to restore normal relationships easier.

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FIG. 3.

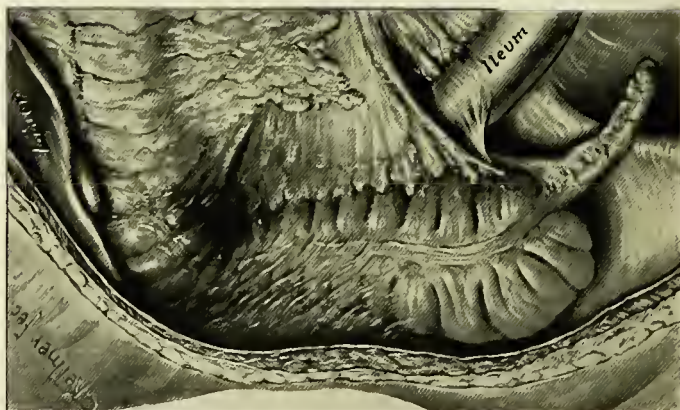


FIG. 1.



FIG. 4.



FIG. 2.

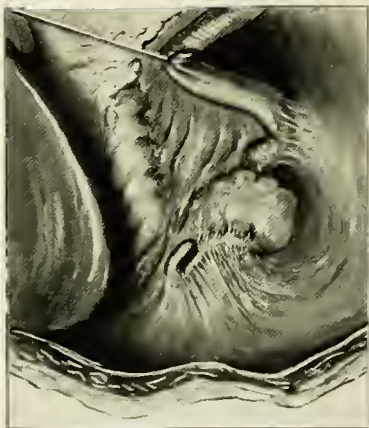


FIG. 6.



FIG. 8.



FIG. 5.

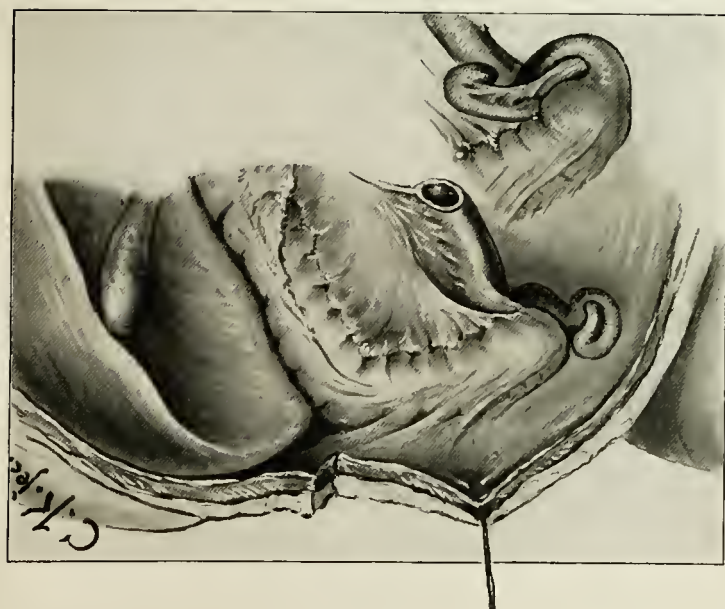


FIG. 7.

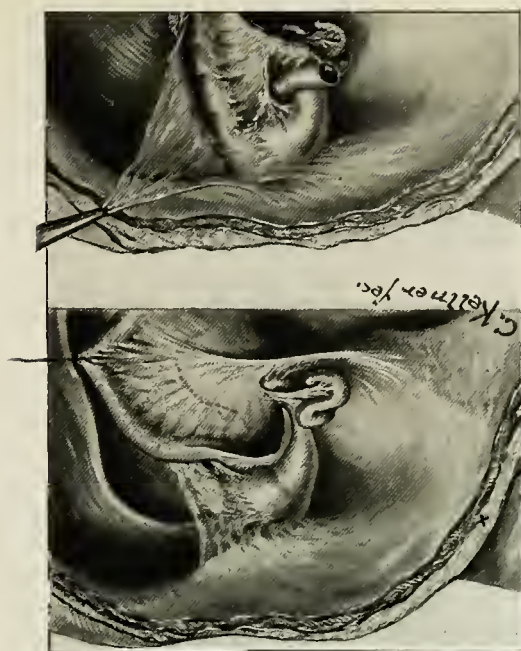


FIG. 9.

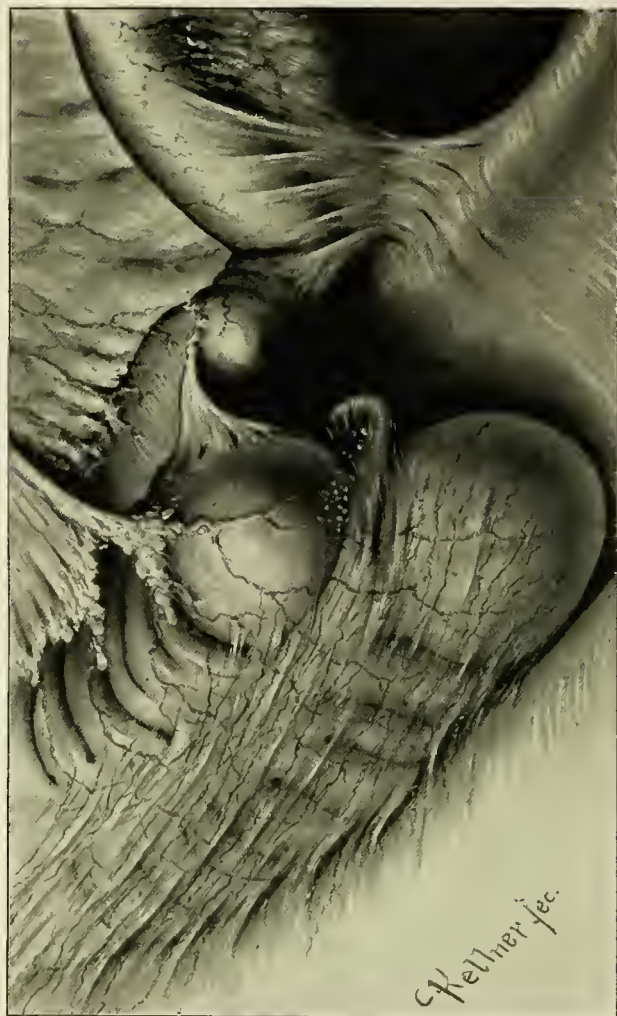


FIG. 10.





FIG. 12.

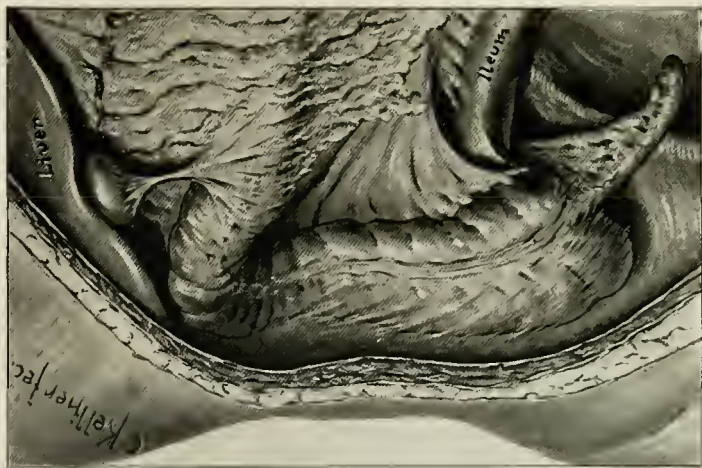


FIG. 13.

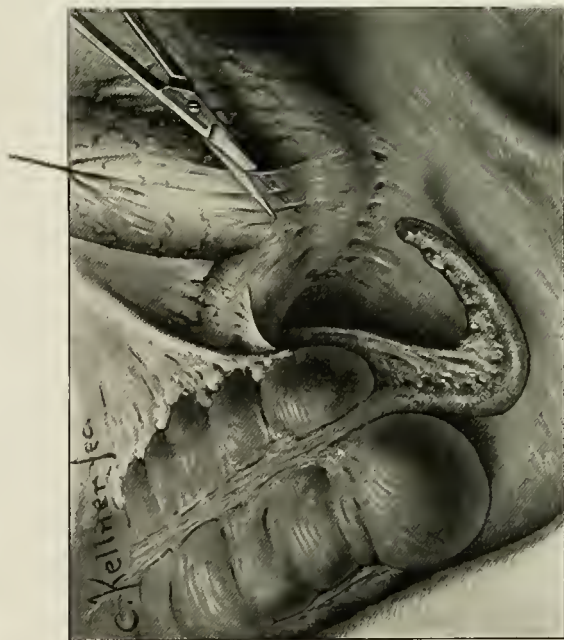


FIG. 11.

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EXPLANATION OF PLATES.*

FIG. 1.—Common type of membrane extending from the parietal peritoneum near the hepatic flexure downwards over onto the ventral aspect of the ascending colon. Caput cæci and appendix free.

FIG. 2.—Embryonic membrane extending from the parietal peritoneum over onto the caput cæci, involving the proximal portion of the appendix, which is kinked.

FIG. 3.—Embryonic membrane extending from the parietal peritoneum near the hepatic flexure onto the ascending colon and cæcum. With the exception of the tip, the entire appendix is covered by the veil. The membrane extends across the colon and is continuous with the omentum.

FIG. 4.—Marked veil over the colon, cæcum, and proximal portion of the appendix, which is kinked and drawn upwards during descent. Note the thickened strands of connective tissue in the membrane causing irregular sacculation of the cæcum and colon. A well-marked Lane's band is present.

FIG. 5.—Human embryo 15½ cm. long. Cæcum undescended. Secondary fusion between the parietal peritoneum and cæcum. These secondary attachments between the parietal peritoneum and the embryonic intestine extend over the cæcum and colon to the mesocæcum and mesocolon. Descent of the cæcum in a case like this leads to the formation of an embryonic membrane such as is shown in Fig. 1. The caput cæci, appendix, and terminal ileum are free.

FIG. 6.—Human embryo 22 cm. long. Cæcum partly descended. Embryonic membrane extending over the appendix and ascending colon. Elevation of the terminal ileum reveals the fusion between the posterior leaf

* The illustrations are reproduced from half-tone plates loaned by courtesy of the Bulletin of the Johns Hopkins Hospital.

of the mesentery and the ileum itself in the form of an embryonic Lane's band. With an attachment like this, the ileum may roll on itself during descent.

FIG. 7.—Infant at term. Cæcum descended. Well-marked embryonic membrane extending from the parietal peritoneum over the ascending colon and cæcum. Such a membrane results from the descent of the cæcum when the attachments in earlier embryonic life are like those shown in Fig. 5. This represents the embryonic form of the membrane illustrated in Fig. 1. The appendix and terminal ileum are free.

FIG. 8.—Human embryo 24 cm. long. Cæcum undescended. Cæcum fused to the parietal peritoneum, the process involving the appendix, which is kinked. The terminal ileum shows a partial fusion to the parietal peritoneum forming an embryonic Lane's band. It is this type of fusion when it extends onto the caput cæci that gives rise to the type of veil shown in Fig. 2.

FIG. 9.—Infant at term. Cæcum undescended. Extensive attachment of the omentum over the cæcum and ascending colon to the parietal peritoneum. Subsequent descent of the cæcum with omental attachments of this nature gives rise to the form of veil shown in Fig. 3. Elevation of the ileum shows the reflexion of the parietal peritoneum onto the posterior leaf of the mesentery. This is the common type seen in adult life.

FIG. 10.—Marked Lane's band showing the kink and rolling of the intestine resulting from embryonic fusions between the terminal ileum and parietal peritoneum such as are shown in Figs. 7 and 8. There is also a well-marked embryonic membrane extending over the ascending colon and cæcum involving the appendix, which is drawn up behind the cæcum during ascent.

FIG. 11.—Marked Lane's band and kink causing obstruction and dilatation of the small intestine.

FIG. 12.—Infant 11 months old. Cæcum undescended. Lane's band. Omental mesentery to the gall-bladder.

FIG. 13.—Omental mesentery to the gall-bladder causing symptoms. Embryonic membrane over colon, cæcum, and proximal portion of the appendix.

DISCUSSION.

DR. WILLIAM F. VERDI (New Haven): *Mr. President and Gentlemen:* These pericolic bands I first observed some ten or twelve years ago. About that time, operating on cases of suspected appendicitis, in a few instances a normal appendix was found but the presence of these bands across the ascending colon was observed. It is not an uncommon thing now to find this condition, but we can be reasonably sure of the condi-

tion present before an operation. It has been my experience in performing secondary operations on patients where the appendix had been removed by other surgeons to find these bands, a division of which had usually given the desired freedom from pain and constipation, the chief symptoms complained of.

I have observed four distinct types of these bands. The first, a band running across the peritoneum of the right iliac fossa up on to the anterior wall of the cecum. This band acts as a sort of an anchor, keeps the cecum constantly distended, causing the sense of fullness and distress in the right iliac region.

The second type runs across from the peritoneum just to the right of the ascending colon, extending across this structure, leaving the cecum entirely free and extending as high up as the hepatic flexure of the colon. This band also produces, by its pressure on the ascending colon, a distension of the cecum and it is usually in these cases that the very large mobile type of cecum is found. The distension of the cecum and its great mobility in these cases is no doubt due to the increased activity required in forcing the intestinal contents upward into the ascending colon, whose action is more or less interfered with by the constricting action of these bands.

The third type is a small band running from the neck of the gall-bladder across the transverse colon, becoming continuous with and losing itself in the great omentum.

Then the last is the type known as Lane's kink.

There is a difference of opinion regarding the origin of these bands. That they are definitely embryological or congenital is not fully settled. In the infant and the embryo the liver occupies a very large portion of the abdomen, extending down to the iliac fossa. Hence the liver occupies at this stage of development the position where the ascending colon eventually will lie. The cecum itself is high up, occupying a position under the liver. Thus, you see there is no ascending colon, the cecum extending into the transverse colon and that becoming continuous with the splenic flexure. The descent of the cecum and the rotation of the gut, along with the crowding of the small intestines against the large intestines, make the ascending colon. These bands are of such long standing that they very much resemble normal structures. If they were congenital, however, no symptoms ought to be attributed to them, because it is a well known fact that the human body adjusts itself to all forms of congenital abnormalities.

Patients with these bands become neurasthenic from the constant and persistent symptoms which they seem to produce. While they do not seem to be of very great import and we more often find adhesions, post-operative, far more distorting than these bands at their worst ever are, yet they do cause symptoms which are relieved after they are excised.

Lane's kink, however, I think is of greater importance, because about two years ago I operated upon a patient who had a real *bona fide* intestinal obstruction due to this kink. Since that time I have had another such case. The small intestine, just before it reaches the cecum, has a shorter mesentery than higher up. In those cases where the small intestine in this region has no mesentery and the intestine is fixed to the posterior abdominal wall as the ileum ascends to enter the colon about five or six centimeters before, is the usual place for this bend to occur.

The youngest individual in whom I have observed these pericolic bands was in a child of fourteen. An operation for the removal of the appendix was performed one year before, without relief.

The diagnosis of this condition from catarrhal appendicitis is to my mind comparatively easy. In catarrhal appendicitis the attacks are usually definite with acute sudden onset and gradual cessation of symptoms and a period of complete and absolute freedom from discomfort in the right iliac region. In the condition under discussion this is not the case, the symptoms extend over a long period.

The pain and discomfort is mild and continuous in character, there is a sense of fullness and at times the patients complain that they are larger on the right side or that occasionally a full sensation and distention is experienced there. As a rule the patients are neurasthenic and complain of a great many other symptoms referred to other parts of the body. Physical examination reveals a soreness or a hypersensitiveness of the abdomen, no muscle spasm, and no induration or tumor masses can be palpated. Occasionally one can percuss out a distended cecum.

THE PRESIDENT: The time is up. The discussion on Dr. Flint's paper will be continued by Dr. Everett J. McKnight, of Hartford.

DR. EVERETT J. MCKNIGHT (Hartford): *Mr. President and Members of the Society:* This is certainly a very interesting and a very valuable paper. For some time, I have felt that many of these bands met with at the time of operation were congenital. My attention was first called to that fact by a case that I had seven or eight years ago, in a woman who presented symptoms of gradually increasing obstruction. Her pain was all in the right side. We did not then resort to all the methods of diagnosis that we have to-day, but we were satisfied that it was malignant disease of the cecum. Incision into the right rectus revealed no tumor, but there was a marked membrane attached over the cecum and ascending colon; and I congratulated myself that we had found the cause of the trouble, and that it was not malignant. I proceeded to separate the veil, which was very vascular, and much thicker than any that I had seen before or have seen since. I asked my assistant, whose

hand was smaller than mine, to explore the abdomen; and he reported that he could find nothing; so I proceeded with my dissection of the band. In examining carefully, however, I could find no evidence of any previous inflammation of the appendix; and I was satisfied that I was dealing with a congenital structure. I thought that there must be some trouble elsewhere, therefore, and found a small, annular carcinoma of the sigmoid, which I operated upon. This woman was subjected to an unnecessarily long operation. What I did to the veil did no good, although it did no harm; but it was an unwise procedure.

That brings us to the practical consideration of what we shall do when we meet with these adhesions. Every man must decide for himself whether they are causing trouble, and this is often difficult. If they are, section should be made. I have obtained results by using sterile vaseline to cover the raw surfaces with when I separated anything. I had a very interesting case recently. We found a marked veil from the gall-bladder to the omentum, and attached clear down to the umbilicus. Separation and section of that membrane put an end to the trouble, and the woman has been quite well since. We are very much indebted to Dr. Flint for his paper.

The Surgical Treatment of Goitre.

OLIVER C. SMITH, M.D., HARTFORD.

The term goitre is broad and far from distinctive, and indicates a morbid enlargement of the thyroid gland. It is defined by Osler as "a chronic enlargement of the thyroid gland of unknown cause with variable anatomical features, occurring as endemic, epidemic or sporadic disease." The terms struma, simple goitre, cystic goitre, goitrous tumor, bronchocele, tracheocele and Derbyshire neck are synonyms, each indicating a benign enlargement of the thyroid gland; while the designations Parry's disease, Graves' disease, Basedow's disease, exophthalmic goitre, hyperthyroidism, indicate not only an enlargement of the thyroid gland, but in addition a complex syndrome involving especially the nervous and cardio-vascular systems.

While the title of this discussion is "The Surgical Treatment of Goitre," a few remarks upon the embryology, anatomy and physiology may be permitted.

EMBRYOLOGY.

The thyroid arises after the manner of ordinary glands as an evagination from the epithelium of the pharynx. It appears in embryos from 3 to 5 mm. as a ventral outgrowth of epithelium in the floor of the pharynx, at the point where the tuberculum impar and the two-paired anlage of the tongue join. This point is the foramen cecum of the tongue. The evagination grows into the mesodermal tissue in the ventral wall of the neck and forms a transverse mass of epithelium. The latter breaks up into irregular cords of cells which by a further process of being grown caudally along the ventral surface of the larynx. The cords of cells are from the first surrounded by connective tissue and later also become surrounded by a network of capillaries. They ultimately break up into smaller masses which become hollow and form

the alveola. Colloid secretion begins toward the end of fetal life or soon after birth. As the gland grows toward its final position it enlarges laterally into two lateral lobes connected by an isthmus. The parametral process represents either a glandular outgrowth from the isthmus or one of the lobes, a remnant of the original connection with the tongue, that is of the thyroglossal duct. The duct usually disappears for the most part, but certain structures sometimes found in the adult, in the line of the duct, are possible remnants of it. They have been variously named according to their position, accessory thyroid, superior hyoid, and prehyoid glands. The parathyroids, or epithelium bodies, come into close relation with the thyroid. They arise as paired evaginations from the cephalic sides of the third and fourth grooves dorsal to the thymus and the lateral thyroid evaginations. As the thyroid grows caudally from its point of origin, these bodies come to lie close to it, or may even become embedded in it. They acquire a structure which resembles that of the suprarenal gland and not that of the thyroid. Their relation to the latter organ seems to be purely topographical.

ANATOMY.

The thyroid gland is an unpaired, variable, frequently asymmetrical gland, which opens to the outside by means of an excretory duct, the ductus thyroglossus. This canal is patent only in the embryonal period in the normal species, the gland being ductless after birth. It is of a bluish red or reddish yellow color, lying upon the lateral surface of the larynx as well as upon the lateral and anterior surfaces of the upper end of the trachea, surrounding the latter like a horseshoe. It is covered in front by the sternothyroids, the omohyoids, sternohyoids and sternocleidomastoid muscles. It presents two lateral lobes and an isthmus, in this respect resembling the prostate gland. Each lobe is oblong forming an apex superiorly, and a blunt, rounded surface inferiorly, resting upon either side of the lateral surface of the trachea and esophagus, as well as the larynx and pharynx.

The isthmus is a narrow band of thyroid tissue varying in width, which lies in front of the second, third, and fourth rings

of the trachea and unites the bases or lower ends of the two lateral lobes.

Frequently a pyramidal or middle lobe exists, assuming the form of an elongated, slender process, which springs from the upper border of the isthmus on one or the other side of the mesial plane, more frequently the left, extending upward for a variable distance toward the hyoid bone upon the cricoid and thyroid cartilages. It is connected to the hyoid bone by a small amount of fibrous and muscular tissue. The thyroid gland is firmly adherent to the tissues upon which it rests, following the larynx in all its movements, a diagnostic point in examining tumors of this region.

In structure the thyroid body is invested by a thin capsule of connective tissue which projects into its substance and imperfectly divides it into masses or lobules of irregular form and size. The cut surface of the gland is of a brownish red color, made up of a number of closed vesicles containing a yellow, glary fluid, separated from each other by intermediate connective tissue. The capillary blood vessels form a dense plexus in the connective tissue around the vesicles between the epithelium of the vesicles and the endothelium of the lymph spaces, which latter surround a greater or smaller part of the circumference of the vesicles. These lymph spaces empty themselves into lymphatic vessels which run into intralobular connective tissues, not uncommonly surrounding the arteries which they accompany, and communicate with a network in the capsule of the gland. A viscid material is found in the lymphatics, morphologically identical with the normal constituent of the vesicle.

The blood supply of the thyroid is from the superior and inferior thyroid arteries, with an occasional additional branch (the thyroidea media or ima) from the innominate artery or the arch of the aorta, which ascends from the trachea. The superior thyroid is the first branch of the external carotid and leaves that vessel just below the great horn of the hyoid bone. It passes toward the thyroid in a tortuous course, curves downward and forward beneath the omohyoid, sternohyoid, and sternothyroid muscles and distributes numerous branches to the anterior surface

of the gland, anastomosing to its fellow of the opposite side as well as to the inferior thyroid. The inferior thyroid, a branch of the thyroid axis, passes upward in a serpentine course behind the sheath of the common carotid vessel and sympathetic nerve, and in front of the vertebral artery, usually to the posterior surface of the gland, anastomosing with its fellow of the opposite side and the superior thyroid. The veins form a plexus on the surface of the gland and on the front of the trachea, from which arise the superior, middle, and inferior thyroid veins, the two former terminating in the internal jugular, the latter in the innominate vein. The lymphatics are numerous and of large size, and terminate in the thoracic and right-lymphatic duct. The nerves are derived from the middle and inferior cervical ganglia of the sympathetic. The inferior or recurrent laryngeal nerve will be spoken of here because of its intimate relation with the gland and of its surgical importance. It arises on the right side in front of the subclavian artery, winds from before backward around that vessel and ascends obliquely to the side of the trachea behind the common carotid and behind and in front of the inferior thyroid artery. On the left side it arises in front of the arch of the aorta, and winds from before backward around the aorta just behind where the remnants of the ductus arteriosus are connected with it, and then ascends to the side of the trachea. The nerves on both sides ascend in the groove between the trachea and esophagus, passing under the lower border of the inferior constrictor muscle, along the larynx, behind the articulation of the inferior horn of the thyroid cartilage with the cricoid, being distributed to all the muscles of the larynx except the cricothyroid.

PHYSIOLOGY.

Probably by reason of the thyroid gland having no duct as an outlet for its secretion, the early physiologists believed that it had no essential function and it was considered by them to be for the purpose of rounding out the neck or that it served as a means of regulating the blood supply to the brain and that it had some connection with the voice and with sleep. The

ancients appreciated that the gland had in some way an association with the organs of generation. In 1859 Schiff found that the thyroid was necessary to life, as dogs upon which he performed thyroidectomy invariably died. A and J. Riverdin described the symptoms produced by thyroidectomy, Orde followed in 1878, and then Kocher on the same lines, stimulating Schiff to further experiments. Schiff reported in 1884 that spasms and convulsions occurred in animals thyroidectomized, and that these might be prevented by implantation of portions of the thyroid gland under the skin or in the peritoneal cavity. Following these early investigators, scientists in every country began investigating the physiology of this organ with the various phases of behavior following partial or complete removal. Wölffler believes that the function of the thyroid gland commences in utero. Richardson has analyzed the thyroid glands of several children who died immediately after birth and also a few prematurely born and finds no trace of iodine or of the blood-pressure reducing substance. These experiments referred to the human fetus in embryo. In the calf the gland does contain iodine in utero. Richardson suggests that as it has been shown that thyroglobulin is excreted in the mammary gland with the milk in the human, the child receives in this manner the necessary amount for its metabolism.

In the early work of determining the physiology of the gland by observing the effects of removing the gland the parathyroids were removed with the thyroid, their importance not being understood, hence the results were mixed. The parathyroids were not discovered until 1880, by Sandstrom, and Gley in 1892 studied them more thoroughly, while Kohn in 1895 proved that these bodies were not thyroids but were independent structures and named them external and internal epithelial corpuscles of the thyroid. Vassali, Generali, Rue, and Edmunds in 1898 worked upon these bodies, removing the thyroids and leaving the parathyroids in dogs and rabbits. Edmunds summarizes his experiments as follows:

The parathyroids of dogs have as much or more to do with saving them from myxedema as the thyroid proper.

After complete excision of the thyroid and parathyroids a great majority of dogs die within a few days and are not saved by thyroid feeding.

If one or more parathyroids are left the animals as a rule survive, but when only the thyroid is left as a rule they die.

Operations that paralyze the secretory nerves of the thyroid, even though a portion or the whole of the parathyroids and thyroid remain, produce changes in the central nervous system which correspond to paralytic symptoms, the lesions that occur being found mainly in large cells, varying from chromatolysis of the Nissl granules to a complete destruction of the cells.

After the removal of the parathyroids in various animals a widening of the eyes occurs which coincides with the view that Basedow's disease is connected with the parathyroids.

Experiments by Moussu led to the conclusions that tetany and convulsions in the thyroidectomized animals are due to the parathyroids having been removed, and that if the animals so treated are fed on watery extract of horses' parathyroids the convulsions are controlled. He also concludes that myxedema is not improved by the administration of parathyroid, and that removal of the thyroids, leaving the parathyroids, produced myxedema in man, and in the young human species cretinism.

It would seem that the secretions from these two sets of glands are more or less correlated, for the removal of the thyroid produces changes in the parathyroids, and vice versa. The extract of the thyroid gland reduces blood pressure, increases the amount of oxygen absorbed, and increases the elimination of carbon dioxide. It likewise increases the nitrogen elimination by the urine and raises the body temperature. The secretion of the gland has a marked control over general metabolism and over increasing the assimilation of oxygen.

Richardson concludes that from its origin and mode of evolution it would seem that the thyroid is to be considered as associated with the respiratory gaseous exchange of the blood and tissues; the phenomena following its destruction by disease or experiment are to be interpreted as a disturbance of the gaseous metabolism, especially with the malassimilation of oxygen by the

body tissues, to which are probably correlated the subnormal temperature, twitchings, loss of fat, and the languor and weakness of brain and muscle tissue associated with the condition. It is also probable that there is some connection between the thyroid and the phosphorus metabolism.

CHEMISTRY.

The chemistry of the secretion of the thyroid is complicated. It contains a number of extractives, xanthin, hypoxanthin, creatin, etc. Baumann in 1896 isolated an active principle which he termed thyroidin. He determined that the substance was iodin in proteid combination, and named it thyroid albumin. Drechsel and Baumann found that the iodin containing proteid could be dissolved in normal salt solution, which solution, when diluted with fifteen volumes of distilled water, had carbon dioxide passed through it, obtaining a precipitate of globulin containing iodine. Oswald proved the physiological effect of the thyroglobulin on the metabolism of animals, finding it increased the elimination of nitrogen. The second proteid separated from the normal salt solution of the gland containing no iodine contains 16 per cent. phosphorus. The amount of total iodine in the gland varies with wide limits.

THE PARATHYROIDS.

In man there are usually four parathyroid glandules, located on the posterior surface of the lateral lobes of the thyroid body, two on either side, one above and behind the other, and separated from the thyroid by connective tissue. The superior parathyroids are usually found one on either side on the posterior wall of the esophagus, and at the posterior edge of the lateral thyroid lobes opposite the cricoid cartilage, midway between the upper and lower poles of the thyroid. They may be found within the capsule, but are usually outside. The inferior bodies, embedded in fat and areolar tissue, lie in front of the inferior thyroid artery about opposite the lower pole of the thyroid, usually antero- or postero-lateral to the lateral lobes. They are not always easily recognized and may be taken for lymph glands, accessory thyroid

nodules, pieces of thymus, etc. The average size of the parathyroid lobules is 6 to 7 mm. in length, 3 to 4 mm. in width, and 1 to 5 mm. in thickness, the latter being the most constant dimension. They are usually oval or spherical or may be flattened and pyriform. They vary from pale or grayish white to dark reddish brown. They are smooth and shining and may be slightly yellow from the fat contents. The structure of the parathyroids is composed of parenchyma made up of epithelial cells with large nuclei. Glycogen is often present in the cells and has been considered a product of parathyroid secretion. The glands have a fibrous capsule which extends down into the substance of the organ in thin strands.

DISEASES OF THE THYROID.

The thyroid gland may be the seat of acute inflammatory action which may result in abscess formation, or chronic hyperplasia, tuberculosis, mycosis, echinococcus and syphilis, the three latter being rare, but all may occur. Tumors of the thyroid include carcinoma, adenocarcinoma, and sarcoma, the first being most common. It is beyond the scope of our present discussion to consider these conditions, but while confining our attention to hypertrophy, hyperthyroidism and cystic degeneration of the thyroid, these rarer conditions must not be forgotten.

CLASSIFICATION AND PATHOLOGY OF GOITRE.

The classification of most authors is that of simple goitre, which includes the various types of cystic goitre, and exophthalmic goitre, known as Graves' or Basedow's disease, as both these clinicians described the symptoms, and latterly the term "hyperthyroidism" has been proposed by Charles Mayo. It has seemed to the author, however, that a more distinct classification would be as follows: simple goitre, to include those transitory enlargements of the thyroid gland which occur as the result of fatigue, excitement, puberty, menstruation and pregnancy, and are the result of an engorgement; cystic goitre, where hypertrophy or engorgement has been followed by degeneration, and a definite colloid, or blood and colloid cyst has taken the place of function-

ing tissue; and the exophthalmic type, or hyperthyroidism, where there is definite increase of the functioning structure and constitutional subjective or objective evidence of an increased secretion and a resulting toxemia. However, the author will not venture to substitute his classification for that already in existence, and in treating of the matter will include under simple goitre the cystic types, and use the term hyperthyroidism or exophthalmic goitre to indicate the severer condition known as Graves' or Basedow's disease. Kocher classifies these conditions first into diffuse and nodular goitre, and divides the diffuse type into a number of different forms, according to their histological characters, depending upon the prevalence of one or the other element of the normal gland; first, the hypertrophied or follicular goitre in which all the elements of the gland are hypertrophied with a new formation of follicles and corresponding increase of epithelium, colloid, blood vessels; and struma, this condition being the primary stage of the two following forms, parenchymatous struma and diffuse colloid struma. In the parenchymatous type the enlargement is due mostly to an increase in the number and size of epithelial cells, while in the colloid type the enlargement is due to increased size of the follicles which are distended by the colloid material. The parenchymatous type is soft and succulent, and when cut is dark purple in color, the gland throughout being highly vascular and the amount of colloid, which is thinner than in the normal gland, is diminished, while in the colloid goitre this substance completely fills the follicles, while the vessels in the main are not congested but contain rather less blood than normal. So between these two types there is a distinct differentiation. In an exceedingly vascular goitre the term "vascular diffuse goitre" has been applied. As a result of inflammatory changes fibrous tissue may develop and predominate, when the goitre is denominated a "diffuse fibrous goitre." The nodular or circumscribed goitre develops only in one or more portions of the gland. There may be a single isolated nodule or numbers of nodules. These may proliferate and grow rapidly owing to secondary degeneration and cause pressure atrophy of the normal gland tissue. This type

is particularly unyielding to medicinal measures and is decidedly favorable for operative treatment. The diffuse goitre is converted into nodular goitre only in the colloid type. Aberrant goitres situated high up laterally on one or the other side, or lower down, extending under the sternum, may partake of any of the pathologic changes of the normally located gland. The classification of Charles H. Mayo, arranged from the work of Wilson and McCarty, is as follows: (a) cystic goitre; (b) hypertrophic parenchymatous goitre; (c) papillary cystic goitre; (d) hypertrophic fetal thyroid; (e) fetal adenoma of the thyroid. Of these types, hyperthyroidism always occurs in the hypertrophic parenchymatous and the papillary cystic type.

Under the head of pathology I would like to quote Dr. L. B. Wilson, pathologist at St. Mary's Hospital, Rochester, who has had a valuable experience in the critical examination of the large number of specimens from the Mayo clinic. He states that there is a definite parallel between the increased amount of functioning tissue and absorbable secretion in the thyroid gland and the degree of severity of the symptoms, and that 80 per cent. of the cases examined by him demonstrate this parallel, and according as the cases were acute or mild, moderate or severe, there was a rising increase of functioning activity as shown by increased parenchyma and increased absorbable secretion in the gland. Cases that had been severe but with remission of symptoms at the time of examination showed microscopically a beginning degeneration, those that had been severe but had reduced themselves to the residual stage where only heart and nervous symptoms persisted, showed more or less complete degeneration in the thyroid gland. It must be added that the extent of the pathologic process, however, will not always parallel the severity of the symptoms, as the individual equation or resistance has to be reckoned with.

At my request Dr. Henry C. Russ, who has examined the specimens in a large number of the series of cases which I present, makes the following report:

"The examination of the thyroid specimens of this series has resulted in anatomical findings quite in accord with the pretty"

definitely recognized conditions described already. To the pathologist, classifications based strictly on histologico-anatomical criteria appeal more strongly than those which introduce an admixture of clinical terms. This is more than ever true in dealing with the pathology of the thyroid; for as has been so well emphasized by Kocher, Wilson and many others, the case which shows clinically many of the features of Graves' disease may have a thyroid with very little of the accepted histological changes, namely, acute parenchymatous hyperplasia. In other words, it is rare to find a gland representing a *pure* hyperplasia; the large majority of glands from the group clinically 'exophthalmic' will present a mixed anatomical condition,—areas of hyperplasia alternating with others of a colloid type and others of induration or degeneration.

Marine of Cleveland has pointed out that struma of the parenchymatous variety may, under the effects of changing metabolism, 'revert' to the colloid type more or less completely, and has demonstrated this experimentally in animals. This reversion may take place while there still remain rather marked clinical evidences of Graves' disease. It is usually accompanied by additional changes of a chronic inflammatory nature, resulting in areas of fibrous induration in which calcium salts may or may not become deposited. This should be kept in mind in the attempt to coördinate the anatomical condition actually found with the previous clinical history.

The pathological examination of this material would then reemphasize two points, viz.: (a) the pathological changes of struma are complex, and through reversion or degeneration, a gland from a case showing unmistakable clinical evidence of Graves' disease may at a given time appear anatomically more like a 'colloid'; (b) under these circumstances it is difficult to adopt a classification satisfactory alike to the logic of the pure pathologist and to the clinician."

ETIOLOGY.

The causes of goitre are not well established. It may be congenital, especially in goitrous districts. It occurs more fre-

quently in females than males; according to Osler the proportion is seven to one. Acquired goitre may occur at any age, sporadically or endemically. It is, however, a disease of young life, the age of greatest incidence being from eight to thirty. That in certain districts of varying altitudes and latitudes goitre is endemic, that individuals entering such districts may develop the disease, and upon removing may be relieved, would seem to fasten the responsibility for its development upon the air, soil or water. That glacial and hard well water are a prominent etiologic factor has long been believed, and the fact that boiling the water or removal from its supply causes subsidence of goitrous growths is well established.

Hyperthyroidism is of complex origin. Disturbance of the nervous system of sudden occurrence and prolonged duration, emotional disturbances, as grief or fright or mental strain, infections, as in tonsilitis, all may act as exciting causes in individuals of latent goitrous tendencies or highly susceptible sympathetic nervous systems. Stimulation or irritation of accessory glands, as the adrenals, the pancreas, the parathyroids, or of the sexual organs, may undoubtedly serve as an impetus for hyperactivity in the thyroid.

SYMPTOMOLOGY.

The symptoms developed by these various types of thyroid enlargement embrace a wide range of phenomena, depending first upon the type of goitre, that is, whether the goitre is over-functioning or not, its size and location, giving us mechanical symptoms of pressure either on the trachea, nerves, or blood vessels and larynx, symptoms referable to injury of the nervous system, both from hypersecretion and mechanical pressure plus mental disturbance in cystic goitre, due to the knowledge and embarrassment of the presence of the tumor, and in the parenchymatous type due to toxemia and poisoning of nerve centers. On the other hand, large colloid goitres may exist without producing marked symptoms. The most obvious and almost invariably present symptom in the type of cystic goitre is an undue enlargement at the seat of the thyroid, while in the parenchyma-

tous type there is an enlargement, albeit it may be small, of the gland, with the four cardinal symptoms, exophthalmos, tachycardia, tremor and progressive weakness. A heavy goitre which falls away from the trachea rather than pressing into it, growing in individuals of phlegmatic temperament, may attain large size without producing special symptoms or interfering seriously with general health. Chronic dyspnea, hoarseness or aphonia may be due to catarrhal laryngitis or pressure on a branch of the recurrent laryngeal nerve. Symptoms referable to impairment of the circulation are due to stasis in the vessels; pressure on the large veins may cause cyanosis, usually of the lips and cheeks, or there may be edema of the face. Pressure on the innominate vein may cause edema or cyanosis in the arms. Pressure on the arteries causes congestive headache, vertigo, etc. The heart action may be affected; tachycardia is a very constant symptom of the parenchymatous type, and cardiac degeneration may be progressive and is the most common cause of fatalities. This may be brought about by disturbance of the respiration from pressure on the respiratory apparatus or pressure on the blood vessels or by the toxemia and over-stimulation of the sympathetic nervous system. Where there is marked acceleration of the heart's action, murmurs develop, later dilatation with increase of blood pressure, still later followed by diminution. Pain is not a common symptom. Tremor in the parenchymatous type is a very constant symptom in advanced cases. Charcot first attracted attention to this condition. Ochsner states that the similarity between the tremor of chronic alcoholism and that of exophthalmic goitre further supports the theory of Moebius that the disease is due to a condition of poisoning through toxic substances circulating in the blood and affecting the tissues directly. The symptom is elicited by the patient extending the arm at right angles with the body and spreading the fingers, when marked oscillations are observed. Increasing muscular weakness and exhaustion in the exophthalmic or parenchymatous type is a distressing and pretty constant symptom. Nervous excitability usually precedes the muscular weakness and in severer cases may be followed by mental deficiency, vertigo, or epilepsy. Intermittent gastro-intestinal

disturbances, such as vomiting and diarrhoea and intermittent sweating, are occasional symptoms. Increase of gravity of any of the various symptoms may follow mental strain, grief, fatigue, psychic excitation or the administration of thyroid extract or iodine. Among the circulatory disturbances is the existence of a marked thrill and visible pulsations in the vessels of the neck and in the thyroid body. Darkening of the skin, especially about the nipples and axillary spaces, is not uncommon. Angioneurotic edema of the skin and subcutaneous tissues may occur, also erythema, blushing and urticaria, as the result of toxic disturbances of the nervous system. Exophthalmos, the most striking and weird symptom of the disease, varies in its extent from a condition scarcely noticeable to one of such protuberance of the eyes as to cause them nearly to leave the orbits. Just how hyperthyroidism causes this exophthalmos has long been in doubt. Vasomotor congestion, sympathetic irritation and muscular spasm have all been suggested. Landstrom has recently called attention to a muscle within the orbit consisting of a cylindrical band of smooth muscle fibres having its origin in the orbital septum and its insertion into the equator bulbi, the cone-like insertion being sufficient to pull the eyeball forward and produce exophthalmos as a result of sympathetic irritation.

DIAGNOSIS.

The diagnosis from the foregoing would seem in the majority of cases to be clear, and so it is. The enlarged gland shows for itself, and the constitutional symptoms are usually not to be confounded with any other condition when a well-marked symptom-complex exists. That the condition is, however, frequently overlooked there can be no doubt, as both patient and physician realize sometimes for many months that there is quickened pulse, muscular weakness, tremor, etc., which are variously attributed to cardiac disease, nervousness, weakness, or possible incipient tuberculosis, until suddenly there is recognized an enlarged thyroid. There are conditions to be thought of, such as neoplasms, branchial cysts, tuberculous glands, leukemia with

enlarged lymph nodes, lymphosarcoma, but the accompanying conditions of these diseases are so unlike that of simple or exophthalmic goitre that the diagnosis is usually not difficult.

Diagnosis is greatly aided by characteristic changes in the blood picture, which recent investigations by Kocher have shown to be constantly present. The number of the different varieties of normal leucocytes undergoes alteration and the number of leucocytes as a whole is slightly diminished. The neutrophile leucocytes, which are most numerous in normal blood, are diminished sometimes to half their normal number, so that they may be less numerous than the lymphocytes; the latter are increased sometimes to twice the normal number, and even if there is no absolute increase, there is always a relative augmentation. The eosinophile leucocytes are usually also diminished, but may be slightly increased, particularly in cases that are not uncomplicated. The number of red blood cells is almost always normal, as is also the percentage of hemoglobin. The viscosity of the blood is usually lowered so that it coagulates more slowly.

Certain ocular tests have been applied to aid diagnosis in the early stages of the exophthalmic type. Dalrymple's sign is a widening of the palpebral fissure. Von Graefe's sign is elicited in the following manner: the eye is directed downward, when it will be found that the lower margin of the upper lid fails to follow the line of vision or follows it in an irregular spastic manner. It is quite distinctive, and probably the result of muscular weakness in the lids. Moebius' sign depends upon the fact that in many cases of exophthalmic goitre there is disturbance of convergence. The patient is directed to turn the eyes upward, then suddenly downward toward the nose, when it will be noticed that one eye will be directed toward the nose and the other in another direction. It may be elicited also by having the vision fixed upon a point some yards distant, then as the object approaches the face one eye will fix the object while the other will diverge. Stellwag's sign depends upon the fact that there is diminished frequency of winking and that the upper lid is more or less retracted and more stationary than in the normal condition.

PROGNOSIS.

The prognosis in simple or cystic goitre, untreated or treated medically, is unsatisfactory as to removal of the tumor if at all chronic. Goitrous individuals may live for years even with large tumors, if pressure on trachea, esophagus or nerves does not occur. There is always danger, however, of cardiac complications, of malignant degeneration of the thyroid, and increase of pressure effects from extension of growth or hemorrhage. Such an individual cannot be regarded as well or as having a long life expectancy. In exophthalmic goitre the mortality is estimated from hospital statistics as high as 30 per cent. This is probably a larger mortality than the disease really carries, as the most severe type enter hospitals. If we include the enlarged thyroids of young life, occurring with menstruation and pregnancy, the prognosis is not so grave. If the hyperthyroidism persists, it becomes serious, and the prognosis less favorable; if the individual survives the toxemia of the hypersecretion the terminal changes in the cardio-vascular-renal system or liver may be fatal.

The operation for cystic goitre in uncomplicated cases is neither difficult nor dangerous in competent hands. The former belief of the laity, and to a considerable extent shared in by the profession, that an operation for goitre was prohibitive by reason of hemorrhage or some ultimate disastrous result upon mind or nervous system, has largely given way to a more correct understanding of the matter. The mortality is probably less than 1 per cent., and ultimate cure can now be expected in 95 to 100 per cent. There is a possibility of the remaining portion of the gland becoming pathologic, but in the simple type this is a rare occurrence.

The prognosis in operations for hyperthyroidism or exophthalmic goitre is more serious, and is largely determined by the period at which the operation is performed. The toxemia due to absorption of thyroid secretion and the consequent symptoms may be confidently expected to subside following removal of the hypersecreting gland tissue. Structural changes, as myocardial atrophy and degeneration, cannot be cured, although the process may be

arrested and the individual may be restored to usefulness and a fair degree of health. This restoration will depend upon other factors than the operation, namely: the inherent resistance, the life and habits of the individual, and the possibilities for hygiene, a certain amount of rest and freedom from much care and responsibility.

The immediate operative results have improved markedly of late years, and reports from large clinics such as Kocher's, Mayo's, Ochsner's, Halstead's, and many other operators of less experience, give a mortality of 2 per cent. to 5 per cent. In the author's series of 46 cases, 11 have improved, and 35 have entirely recovered. When we realize that the majority of cases operated upon have first been treated by other means and are the ones that do not naturally tend to recovery, the triumph of surgical treatment is apparent. The ultimate results should be conscientiously observed and recorded by all operators, to provide the future with more substantial grounds for prognosis. Ochsner and Thompson have prepared a history blank for such records, which, if generally used, will greatly aid in arriving at conclusions.

TREATMENT.

It is admitted by all that goitres are to be treated both by non-surgical and surgical methods. As this discussion is confined to surgical treatment, methods other than surgical will simply be enumerated, without further discussion. They are:

- (a) Rest, nutrition, and hygiene.
- (b) The above, plus medical treatment.
- (c) The two above, plus electrical treatment, high frequency, irradiation.
- (d) One or more of the above methods, plus the use of sera, as originally introduced by Moebius, and latterly so extensively employed and advocated by Rogers and Beebe of New York.

The surgical treatment is subdivided into:

- (a) Excision, or thyroidectomy (Kocher).
- (b) Enucleation (Porta and Sacin).
- (c) Resection, advocated by Mikulicz.

(d) A combination of these methods.

(e) Ligation of arteries, as suggested by Muys and adopted by Wölffler.

(f) Bipolar ligation (Werelins-Stamm-Jacobson).

(g) Injection of water at boiling temperature into the thyroid gland (Miles Porter).

HISTORY.

The possibilities of surgical treatment of exophthalmic goitre were not conceived for nearly one hundred years after the description of the disease by Parry in 1786. Two publications in the latter part of the nineteenth century (1880 and 1884), one by Tillaux of France, and one by Rehn of Germany, revealed the beneficial results of operative treatment. To Theodor Kocher belongs the credit for establishing the operation of thyroidectomy upon a sound and safe basis, his earliest treatise on this subject appearing in 1882. During the years following, his investigative labors, his inventive genius and operative skill have been largely responsible for the advancement of the world's knowledge upon the subject, and for popularizing the operative treatment. To Moebius is due the honor of discovering the fact that the train of symptoms occurring in exophthalmic goitre were due to disease *in* the thyroid gland and its hypersecretion, and to Wölffler belongs the credit of discovering the value of vascular ligation. Halstead and Charles H. Mayo followed with numerous publications, illuminating the subject both from the clinical and pathologic side as well as the surgical. The reports of the collected papers of the staff of St. Mary's Hospital at Rochester, from 1905 to 1911, are replete with the original articles by Wilson and McCarty of the pathologic department, and Dr. C. H. Mayo of the surgical. Dr. Mayo at the close of 1911 had operated upon over 3,000 cases of goitre, 1,100 of this number being cases of hyperthyroidism. Goitres of both types, simple and exophthalmic, are operated upon now in all the large clinics of this country and Europe with remarkable success and freedom from danger.

INDICATIONS FOR OPERATION.

- a. In simple or cystic goitre.
 1. Pressure upon the trachea, esophagus, vessels or nerves, causing apnea, dyspnea, audible breathing, dysphagia and partial asphyxia.
 2. Deformity, distress from weight of tumor, especially if enlarging.
 3. Mental disturbance from pressure of tumor.
 4. Disturbances of the vascular and nervous system, which occur even in cystic goitre.
 5. Evidences of malignant degeneration, nodules, increasing hardness.
- b. In hyperthyroidism.
 1. Persisting symptoms after a reasonable trial of rest, well-directed medical and hygienic treatment.

Contraindications.

1. Marked complicating lesions, cardiac, renal or respiratory, sufficiently severe to render any surgical operation too hazardous.
2. Cardiac degeneration, with feeble pulse and general edema.
3. Severe gastrointestinal disturbance.
4. A thyroid tumor of prohibitive proportions, especially if firmly fixed and unyielding.
5. The soft, diffuse, bilateral types, while not necessarily constituting a prohibitive contraindication, are less susceptible to safe removal than the discrete, unilateral and firm growths.

ANESTHESIA.

This subject has been much debated; nearly all forms of anesthesia have been employed. Where there is no contraindication to the use of ether this anesthetic, administered with skill and caution, by the drop method, by one of experience, is best suited for the majority of cases. The anesthesia should be preceded by morphine, 1-8 to 1-4 grain, with atropin, 1-150

grain, hypodermatically, and should be administered behind a Kocher screen, which shields the operative field. Local anesthesia, novocaine, or alypin, 1 per cent. to 2 per cent. in decimal salt solution, may be employed in cases of severe cardio-respiratory complications.

POSITION OF PATIENT FOR OPERATION.

The position of the patient during operation is important. In nearly all of the author's cases the upper part of the body has been elevated to an angle of 45 degrees, the buttocks rest upon a transverse attachment which prevents the patient from sliding, and the limbs are bound with Martin's elastic bandages at the groin, sufficiently tight to control return circulation. The objects of this position are as follows:

(1) The operative field is brought up into convenient location for the operator.

(2) Local anemia is produced, giving us a drier field, hence marked conservation of hemorrhage and corresponding facility in operating.

(3) The cerebral anemia thus induced renders a very small amount of anesthetic sufficient, in fact very little is given after the patient is under and placed in the elevated position.

(4) Furthermore, after a few moments of operating, the patient will have accumulated a quantity of blood in the lower extremities which can be turned into the general circulation at the will of the operator; in other words, the upper part of the body, including the brain, can be transfused from the patient's own veins.

In the operative work of the author this position has been employed for the past four years, not only in operations upon goitre, but in other work upon the neck, throat, mouth and breasts. We believe it is a very valuable factor in the technique. In over 100 cases the blood pressure has rarely failed to be diminished less than from 15 to 40 mm., and its prompt return to the condition prior to operation upon the removal of the bandages and lowering the trunk can be confidently expected.

TECHNIQUE.

The method of excision, as introduced by Kocher, consists of a transverse incision in front of the neck, from one sternomastoid to the other, the center of the incision dipping downward toward the sternum; dissection of flaps; incision of the deep fascia and platysma in the median line; retraction of the hyoid group of muscles collectively on either side; ligation of anterior jugular and transverse veins; incision and reflection of thyroid capsule anteriorly; dislocation of first one pole and then the other, with ligation of the superior and inferior thyroids; crushing with strong forceps the isthmus, and removal of one lobe, with repetition of the process if the opposite lobe is to be attacked.

Enucleation consists of an incision into the tissue of the thyroid, after a preliminary dissection as performed in excision, and a blunt shelling out of the collections of colloid and blood composing the cyst.

Resection consists in crushing and removing sections of the affected lobe, the indications for which, according to Kocher, are limited to cases in which small prominent nodules lend themselves to such treatment, or in diffuse cases with pressure from either side on the trachea, where dislocation of the lobe is impossible. The method is necessarily more hemorrhagic and less complete.

Kocher introduced a combination of these methods, employing the incision previously described, and exposing the lobe to be attacked. The isthmus is crushed, ligated and incised, following which a portion of the gland is separated from its capsule, and other portions are crushed and ligated by the use of ligature carrier, the freed portions of gland then being removed.

The plan of ligating one or more of the thyroid arteries in cases where from the severity of symptoms a more radical operation is unsafe, has been generally adopted by those of largest experience. It is usually performed under local anesthesia. A vertical incision is made under the inner border of the sternomastoid muscles, on a level with the upper pole of the thyroid. The muscles are retracted outward, the superior thyroid artery and veins are located and ligated with catgut and aneurism needle.

The operation of ligating the upper pole of each lobe may be performed through a similar incision or by a transverse incision, retracing the flaps upward and the muscles laterally, exposing each lobe, and passing a ligature around the upper pole, including in the ligation practically all the branches of the artery and vein, with some of the gland tissue. This operation is rather more simple than the one of ligating the vessels only.

The technique which has been employed by myself and my associate, Dr. George N. Bell, in the series of cases presented, has been essentially that of the method of excision described by Kocher. The field is carefully draped and the skin prepared by washing and the application of alcohol and bichloride, Harrington's solution or the now popular benzene and iodine preparation proving too strong in some instances for the delicate skin of the neck. The incision, while varying in extent, is U-shaped rather than transverse, commencing at a point nearly opposite the pomum Adami, over the middle or inner margin of the sternomastoid muscle, and dipping down nearly to the manubrium. This flap, consisting of skin, fat and superficial fascia, is quickly dissected upward and fastened by a clip to the Kocher screen. The superficial veins, usually including the anterior jugulars, are doubly ligated and divided, the deep fascia incised between forceps in the median line. The fascial edges, with the sternohyoid, the omohyoid and the sternothyroid, are retracted outwards. Transverse section of one or more of these muscles is made if more room is required; we have found it necessary in less than one-third of our cases. The disadvantage of such division is the unevenness which may be felt through the flap, and adhesions which may form. The external jugular on the side upon which one is operating may require ligation, with other smaller veins which are much enlarged in the pathologic process. The lobe to be removed will now be found well exposed. The external capsule is vertically incised between forceps, and by cautious sharp dissection stripped from the gland. The lower lobe is explored with the finger and gently elevated and carried inwards. The vessels and adhesive bands are clamped and ligated, watchful care being exercised to avoid the carotid packet, the recurrent laryn-

geal nerve and the lower parathyroid body. The upper pole is now dealt with in a similar manner, the superior thyroid vessels being doubly clamped and divided, and at once ligated, as in this location there is considerable tension, so that if the vessels draw out of the forceps, retraction makes it difficult to secure them. The lower pole is now rotated toward the trachea, the capsule separated by gauze and careful blunt dissection. The lobe is then lifted and its attachment to the isthmus dealt with by crushing, incision and suture. All the isthmus may be included with the lobe in the portion to be removed. In dealing with cystic goitre, where the outlines are well defined, the extent of the excision is readily determined. In the parenchymatous hypertrophy, however, one must terminate the excision frequently without lines of natural cleavage by clamping, crushing, ligating or suturing. The amount of gland to be removed is to be determined at the time of operation; most frequently we removed one lobe. If both lobes are much enlarged and the patient's condition will warrant, both may be removed, and the isthmus allowed to remain. In this procedure it is especially important to conserve two or more of the parathyroids. Careful hemostasis will be secured by ligating all points that have been clamped, the removal of bandages from the limbs, partial lowering of the patient, increasing the blood pressure in the operative field before the wound is closed. Oozing will frequently follow, which must be in turn secured before the wound is sutured. The divided muscles and fascia are closed with fine catgut, and the skin with interrupted or buttonhole sutures of horsehair or fine silk, introduced on fine cambric needles. At the most dependent portion of the incision a cigarette drain is introduced and carried a short distance upward under the flap. If a substernal projection of thyroid has been removed, this cavity is likewise drained. Dry dressings are applied, covered by oiled silk or rubber dam to prevent soiling from vomitus. Snug strapping and bandaging complete the dressing. The patients are so lightly carried under anesthesia that they usually converse before leaving the table, and if the condition of circulation will warrant, they are propped up in bed from the first. From 250 to 500 cc. of saline solution is slowly intro-

duced into the rectum, as after laparotomy. Patients are allowed liquids at once if vomiting does not preclude.

Since writing the above increased efforts have been made to further limit hemorrhage, both during and after operation, and in four cases of the cystic type, where a dry field has been preserved, the wounds have been closed without drainage, in each instance with good results.

DANGERS.

During the past few years the dangers of operation have been reduced to the minimum. In the simple or cystic goitre, shock rarely occurs unless there has been hemorrhage. Infection also is of rare occurrence with a careful aseptic technique. Injury to the recurrent laryngeal nerve may occur when dissecting posteriorly to the lower lobe or ligating the inferior thyroid, resulting in unilateral vocal cord paralysis. The voice is frequently temporarily affected by irritation of this nerve, the trachea or the larynx. Injury to the trachea is of more frequent occurrence; one or more rings may be nicked or fractured by forceps. A hissing sound of air rushing in and out will indicate the accident. The damage should be promptly repaired by delicate purse string or Lembert sutures with fine catgut on a curved round needle. If air continues to escape, infection may occur. Collapse of the trachea from removal of pressure caused by the thyroid is a more serious occurrence, and may require tracheotomy. A tracheotomy tube should always be in readiness. Entrance of air into a vein may follow a cut or tear of the vessel. Such an opening should be promptly closed by the pressure of moist gauze until a clamp or ligature can be applied. Injury to or removal of the parathyroids, once a bugbear, need cause us little concern now with our present method of operating, one or at most two parathyroids being sufficient to perform the parathyroid function and prevent tetany. In operating for exophthalmic goitre, in addition to the above local dangers, we may occasionally expect a sudden exacerbation of hyperthyroidism, with high temperature, frequent pulse and tumultuous heart action. This is the most serious post-operative danger. Crile and others have called attention to the factor

of fright and nervous excitement just before or at the time of the operation as being important in the causation of the sequel, and have recommended measures to dispel apprehension and forestall fear, such as keeping the patient in ignorance of the time appointed for the operation, and administering a small amount of anesthesia a few times before the operation is performed. In our forty-six cases of exophthalmic and mixed goitre this condition has followed the operation but once. With this exception the patients have neither dreaded nor been fearful of the operation in our most serious cases, but on the contrary have been eager for the anticipated relief and welcomed the operation.

RESULTS.

The mortality in operations for simple or cystic goitre has been steadily reduced until now the operation is looked upon as exceedingly benign. Theodor Kocher, reporting his third series of 1,000 operations, gives a mortality of .4 per cent.; in 333 subsequent operations but one death has occurred, while in 200 operations for exophthalmic goitre the mortality is 4.5 per cent. Charles Mayo reports a series of 900 operations during the present year, with a mortality of 1 per cent., and a series of 160 operations for hyperthyroidism without a death. In the author's series of 82 operations for goitre, 33 have been cystic, 40 exophthalmic and 6 mixed; 2 were supernumerary thyroid deposits, and 1 a sarcoma. Two other cases, both malignant, have been examined, but were considered inoperable. There have been no operative deaths. One young woman, who came a long distance on a stretcher, was beyond the help of either medicine or surgery, and died of a complication of terminal results within a few days after reaching the hospital. The average age of these patients was 33. There were 5 males and 77 females. There were 11 ligations, either of the superior thyroids or the upper poles, and 68 partial thyroidectomies. Of the 33 operations for cystic goitre, all the patients have practically recovered, none of them up to the present writing having required a secondary operation. We anticipate that the remaining portions of gland may hypertrophy or become

cystic, and require a secondary operation in rare instances. In the 40 operations for exophthalmic goitre and 6 where a mixed condition of pathology existed, apparent complete recovery has occurred in 35 cases, or 76 per cent., and improvement in 11, or 24 per cent. A number of these 11 improved cases are still too recent to permit a statement of final results, 3 of them having been performed since January. A fair estimate would probably give us 50 per cent. of this number ultimately recovering, which would bring our recoveries up to 87 per cent.

Since this article was written the author has performed six partial thyroidectomies for exophthalmic goitre, and one including both lobes for cystic goitre, bringing the number of partial thyroidectomies up to 75 with no fatalities.

THE AUTHOR'S CONCLUSIONS.

(1) That colloid, cystic, and nodular goitres are best treated by operation. In these cases the risk is exceedingly slight and the relief is marked and generally permanent.

(2) That the engorged and swollen thyroid of puberty and pregnancy, or that occurring in young life as the result of mental strain or sexual excitement, calls for rest, hygiene and conservation of the nervous system.

(3) If we accept the parallel of Wilson, which is accepted by those who have had the largest experience, the rational deduction is that a portion, be it larger or smaller, of the hypertrophied, hyperfunctioning gland unrelieved by other measures should be removed, either by one method or another.

(4) That in serious cases this is more safely performed in two stages, the first of which has for its object the limiting of circulation by the ligation of the vessels or upper poles of the gland.

(5) That operations for hyperthyroidism, like those of other lesions where the progress is downward, where secondary changes occur which cannot be remedied, if operation is to be performed, should not be postponed until all hope of repair of damaged tissue is past.

(6) That occasional untoward results reported by those of large experience in the use of sera should deter us from promiscuous hazard methods in its administration.

(7) That with improved technique and methods, and with discrimination in selection of cases, the hazard of operation for simple goitre is negligible, while in hyperthyroidism the result will be as satisfactory, and the mortality lower than in most other serious lesions demanding surgery which has as its goal the saving of life and the minimizing of morbidity.

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DISCUSSION.

DR. HARRY M. LEE (New London): *Mr. President and Members of the Society:* Dr. Smith has very entertainingly presented this subject to you in part. I have had the advantage of the rest of you, in having read his paper, and I am sorry that you did not hear it all. It contains so many striking and salient facts regarding the surgical treatment of goitre that from among them I had to choose a few which were more interesting to me, and which I thought would be more interesting to others.

Dr. Smith mentioned very briefly that thyroid disease appears in a very varied manner, the phenomena of which are totally diverse; and in approaching this subject, one must always have in mind the varying and conflicting syndromes that will be presented. The picture of a

large cystic goitre without symptoms, to those hyperthyroid cases that seem as if they must soon run to destruction, are the extreme cases.

With regard to a classification of this disease, Dr. Smith mentioned in this paper the absolute impossibility of a classification being found or made that will satisfy both the pathologist and the surgeon. It is impossible, apparently, for the pathologist cannot make such a classification which fits clinical pictures if he sticks closely to his own pathological ideas. A pathological classification will not account for the symptoms expressed by the patient. These cases of extreme hyperthyroidism are very apt to show very little change—at least, a pathological change—in their thyroid glands. Dr. Smith has made an advance of a step in the way of classification that I am sorry you were not able to hear; but to my mind, in this anxiety of the surgeon to adhere to the strict teaching in regard to the pathological factors, the main factor is overlooked that will give us a reasonable classification. That fact is the physiology of the thyroid gland; and I should think it very negligent of me if I did not tell you that in the State of Connecticut (a fact that many of you have evidently lost sight of) there was a man who gave us a terse, concise, excellent grouping of thyroid disease, particularly of the exophthalmic goitre class, based entirely on physiology. This man is Dr. Bacon, who is to follow me in the discussion. It seems to me that the best classification that we have had in all these years is this one made by Dr. Bacon.

Rapidly going over Dr. Smith's paper, which reached me only night before last, I found so many interesting things in it that it was absolutely impossible for me to find out just what I wished to say; but there were a few facts that deserved particular attention. For instance, I do not consider this type of hyperthyroidism (exophthalmic goitre) as entirely a surgical problem. We know how this disease varies. We have seen some cases that seemed to be going on to destruction. These are the ones that we would like to interfere with quickly; and yet they are the cases that one cannot interfere with surgically at that time, because one does not dare to subject the patients to the shock of an operation. While waiting for surgical interference, they may be put on symptomatic treatment and clear up. In approaching these cases, we should first subject them to a critical diagnosis of what type they are suffering from, and they should then be subjected to medical treatment before interfering surgically; and this is not a simple thing to do.

DR. LEONARD W. BACON (New Haven): *Mr. President and Gentlemen:* To discuss a paper of this kind, of which we have heard only a part, has some disadvantages; but my comments are made, like those of my predecessor, from having had an opportunity to read the whole paper. Speaking of some of the difficulties of the diagnosis of disease

of the thyroid gland, aside from plain goitre, Dr. Smith mentions an acute strumitis. This is not a common difficulty; but I saw a case, some years ago, with distinct local symptoms of inflammation and the classical signs of inflammation in the thyroid region, but, singularly enough, no general symptoms of disturbance of thyroid function at all. Recovery came on without anything that could be ascribed especially to the treatment, which was simply of an antiphlogistic type, in the course of two weeks.

Dr. Smith's paper does not speak definitely of a type of goitre that is sometimes difficult to handle, a goitre that extends beneath the sternum, and possibly has its most considerable development there. The difficulty in these cases is not, in my experience, very grave. In the so-called "plunging goitre," the fact that it rises and falls with respiration indicates that its attachments are very loose. I have removed one from behind the sternum that presented a mass the size of the fist. We were surprised to find how easily it was dealt with, this being due to its loose attachments.

My predecessor has very properly emphasized, it seems to me, the point that Dr. Smith made with regard to the discrepancy between the clinical and histological findings. This is exemplified in Graves's disease, which may come on entirely without signs of goitre. Some people speak of calcifying goitre without inflammation; in a case that I operated on, flakes of true bone were found disseminated throughout the gland. The specimen is now in the museum of the Yale Medical School.

One single note as to diagnosis and treatment in the presence of enlarged and soft goitre. It is a small matter, and may be of help when the diagnosis is not easy. The simple way to palpate is to thrust the whole goitre to the left side of the neck and then you can palpate the lobe on the left side; and then throw it to the right side of the neck, and you can palpate the right side distinctly and get evidence of enlargement that you cannot get when the goitre is in the median line of the neck.

I am sorry that my predecessor did not speak further of a sign of exophthalmic goitre to which he drew attention some years ago, namely, direct response to pressure over the carotid tubercle in cases of exophthalmic goitre, giving a peculiar reflex. In the cases in which I have tried it, I have not elicited this sign to my complete satisfaction; but it was an interesting observation, and a sign that Dr. Lee found repeatedly in several cases.

The paper speaks, among other things, of blood-changes, but rather fails to indicate in what type of goitrous difficulty these changes are found.

As to the prognosis under other than surgical treatment, I think that the writer does not do entire justice to the benefits that may be received from medicinal or quasi-medicinal treatment. I have recently had good

satisfaction in seeing goitres recede by the direct injection of Burnham's soluble iodine into the mass. This solution is nothing in the world but a tincture of iodine prepared by repeated distillation with absolute alcohol.

There are several other methods of surgical treatment than those enumerated. Dr. Smith does not mention skewering the gland and leaving it to desiccation, which was much in vogue some years ago in Europe, but not in this country; nor does he take up the question of operation on the sympathetic glands as a means of controlling the symptoms of exophthalmic goitre.

DR. DANIEL F. SULLIVAN (Hartford): The diagnosis of Graves's disease is not as easy to make as the paper suggests. Many cases called exophthalmic goitre are not true types of Graves's disease, but simple goitre, met with, perhaps, during a period of gland exacerbation, giving symptoms resembling Graves's disease, and if operated on, during this period, generally have a stormy experience, and if they die the case is then surely diagnosed Basedow's disease. We should not attempt any surgical interference in these cases passing through the danger zone of this much misunderstood disease, but wait until the safe period arrives, which can be made safer by proper treatment such as rest, dietetics, change of climate, suggestion, etc. Even then, the very most the wise surgeon will attempt is the preliminary operation of ligation of one or more poles, as his good judgment may suggest before attempting the radical operation. I firmly believe the teaching of Kocher is correct and that Graves's disease can only be cured by surgical measures applied when every means of increasing the patient's resistance to the shock of operation have been employed. Many investigators at present believe that when Graves's disease will have been placed in its correct pathological class, errors in diagnosis will be less, and the mortality of this dreadful disease decreased, a hope that can only be accomplished by the surgeon selecting the proper time and proper patient for operation.

DR. HENRY C. RUSS (Hartford): I have been permitted by Dr. Smith to see anatomically some of the recent specimens of thyroid gland that he has extirpated, and he has requested me to add a word on the pathological condition. Those specimens which I have seen have not presented anything much in the nature of a novelty, but have served to emphasize again what has been brought out by almost every speaker—the difficulty of coördinating the clinical symptoms and the histological findings. I think that, keeping this difficulty in mind, we should remember that the condition found histologically after operation is not necessarily always that which might have been found, had the gland been removed earlier. In other words, when, in a case of exophthalmic goitre a gland, histologically, of the simple or colloid type is found,

that gland may in previous times, when the symptoms were perhaps more acute, have presented much more the parenchymatous picture that we naturally associate with exophthalmic goitre from the textbook picture. I was interested, in this connection, to hear what Dr. Bacon said about the injection of the solution of iodine; for Marine, of Cleveland, has demonstrated this reversion from the exophthalmic type to the colloid type experimentally in animals, by the very procedure of the administration of iodine. That is, the iodine has brought about actual change in the hyperplastic hypertrophy of the parenchymatous gland to the colloid type; so that I wish that this work would be carried on by others, and either confirmed or disproved, as to the results of iodine medication on the anatomical condition of the gland.

DR. WILLIAM W. BRACKETT (New Britain): *Mr. President and Gentlemen:* The trouble with this goitre question, it seems to me, is this: Every time we see a goitre or any enlargement of the thyroid gland, we say that every other symptom is the result of the thyroid trouble. To my mind, that thyroid is very often doing the very best it can. It is working just as hard as possible. What you have got to do is to get behind the thyroid and see what is producing the trouble. It may be a case of tuberculosis. Dr. Lyman tells me that this has very often been found at Wallingford. Dr. Brown thinks that many cases of nervous symptoms in patients with tuberculosis in Windham County come from the thyroid enlargement that is found in many of these cases. Very often it is intestinal toxemia that is the most prominent feature. Dr. Sullivan has spoken of biliary calculi. Within a year, I have found cases that illustrated this.

In regard to Dr. Crile's views, in speaking of the after treatment in his recent address, he said that the way in which the cases are handled in the year or two after operation makes more difference than does the particular way in which the operation is done. Adami, of Montreal, speaks of habits of cells. Is it not possible that we may have a cell-habit here? That was illustrated by two cases of abortion in my practice, in which the patients were troubled with hyperthyroidism for several weeks afterward. I figured out that the thyroid in these cases had been working under its physiological stimulus, and that that stimulus had been taken away suddenly, in all probability, by criminal abortion; but that the thyroid had kept on working. It took three or four days of antithyroid treatment for the thyroids to go down. The temperature and the pulse went down also, and the nervousness disappeared. Of course, you would say that that was a case of goitre of pregnancy; but I found no local evidence of it. The increased temperature is one of the regular indications of thyroid trouble.

Now a word about prophylactic treatment: If you go through a school, you find a certain percentage of the children with enlarged

thyroids; and most of these are of a certain type. They are just the type that develop later into larger cases of thyroid trouble; and I think that you can do a good deal by telling the parents that the children's lives must be ordered along certain lines, that they have thyroids that are not strong, and that they must be kept away from too much excitement.

DR. O. C. SMITH (Hartford): *Mr. President and Gentlemen:* I want to thank the members of the Society for their generous discussion of my paper. I did not go into the medical treatment, because the subject was the surgical treatment; and I did not take up some of the forms of treatment referred to by Dr. Bacon, because my paper was too long already. Therefore, many things were omitted that might have been mentioned.

Hyperthyroidism is a medical disease, and should be treated medically. When medical treatment fails, however, surgical treatment is essential. In spite of the fact that hyperthyroidism is not always accompanied by thyroid hypertrophy, still the parallel of Wilson is admitted, that the amount of thyroid enlargement tallies pretty thoroughly with the symptoms that show mere hyperthyroidism in 80 per cent. of the cases.

I have said in the paper that rest, hygiene, and the use of sera are of importance in the treatment of this disease. In the technique in those cases in which Dr. Bell, my associate, and I operated upon, we found that twelve required preliminary ligation. By ligating first one or two of the vessels and the upper poles of the thyroid, the patients have rallied and have given us a line as to their resistance to operation; so that the radical operation could safely be performed later. Of the thirty-three operations for cystic goitre, all the patients have practically recovered, none of them, up to the present writing, having required a secondary operation. We anticipate that the remaining portions of gland may hypertrophy or become cystic, and require a secondary operation in some instances. In the forty operations for exophthalmic goitre and six in which a mixed condition of pathology existed, apparent complete recovery has occurred in thirty-five cases, or seventy-six per cent.; and improvement in eleven, or twenty-four per cent. A number of these eleven improved cases are still too recent to permit a statement of final results, three of them having been performed since January. A fair estimate would probably give us fifty per cent. of this number ultimately recovering, which would bring our recoveries up to eighty-seven per cent.

And now the conclusions:

1. Colloid cystic and nodular goitres are best treated by operation. In these cases, the risk is exceedingly slight, and the relief is marked and generally permanent.

2. The engorged and swollen thyroid of puberty and pregnancy, or that occurring in young life as the result of mental strain or sexual excitement, calls for rest, hygiene and the conservation of the nervous system.

3. If we accept the parallel of Wilson, which is accepted by those who have had the largest experience, the rational deduction is that a portion, be it larger or smaller, of the hypertrophied, hyperfunctionating gland, unrelieved by other measures, should be removed.

4. In serious cases, this is more safely performed in two stages, the first of which has for its object the limiting of circulation by the ligation of the vessels or upper poles of the gland.

5. Operations for hyperthyroidism, like those of other lesions in which the progress is downward, and in which secondary changes that cannot be remedied occur, if operation is to be performed, should not be postponed until all hope of the repair of damaged tissue is past.

6. The occasional untoward results reported by those of large experience in the use of sera should deter us from promiscuous, haphazard methods in their administration.

7. With improved technique and methods, and with discrimination in the selection of cases, the hazard of operation for simple goitre is negligible; while in hyperthyroidism, the result will be as satisfactory as, and the mortality lower than in most other acute lesions demanding surgery that has as its goal the saving of life and the minimizing of morbidity. (Dr. Smith then presented a male patient who had been operated upon for a severe exophthalmic goitre.)

The patient came into the hospital suffering with thyroid trouble, and soon afterward became delirious. We hesitated to operate, and would not have done so; but Dr. Starr insisted, and it is due to his bravery that Mr. Dunn has recovered. We ligated first one side and then the other. Partial thyroidectomy was performed in November, and he left the hospital in three weeks. He was at work again in six weeks. His pulse is now entirely normal, and you see that the tremor has subsided. He has gained twenty-six pounds and to all intents and purposes he is perfectly cured.

MEDICAL PAPERS.

Recent Developments in the Diagnosis and Treatment of Tuberculosis.

WILLIAM B. BARTLETT, M.D., HARTFORD.

Since the Sixth International Congress on Tuberculosis met at Washington in the fall of 1908 there has been a renewed interest in tuberculosis in this country. This interest has manifested itself in two ways—first in the education of the public and the founding of institutions to care for the tuberculous and secondly in the scientific work which has been done on tuberculosis.

When the International Congress met in 1908 there were 195 associations in the United States and Canada for the study and prevention of tuberculosis; three years later, January, 1912, there were 618 such societies. It would, however, be of very little value to educate the public through these associations as to the cause of tuberculosis and the danger of infection from the tuberculous patient if no means were taken to treat those already ill. It is therefore of interest to learn that whereas in 1908 there were 240 special institutions for the tuberculous having, in all, fourteen thousand beds, there are now 451 such institutions with over twenty-eight thousand beds; an increase of over fifty per cent. in three years. It is the tendency of the times to erect small institutions in each county so that the patient may be cared for near his home, where he is accessible to his friends and relatives. It is of interest to know that Connecticut adopted this system in establishing our state institutions and is thus with those at the front in the tuberculosis movement.

Turning from the sociological to the scientific side of the question, we come to the main substance of our paper—a review of developments in the diagnosis and treatment of tuberculosis.

ETIOLOGY.

Considering first the *etiology* of tuberculosis, the first question that comes to our minds is the controversy as to whether bovine tuberculosis is transmissible to human beings. Robert Koch at the British Congress in 1901 announced his conviction to be that "Human beings *may* be infected by bovine tubercle bacilli, but serious disease from this cause occurs very rarely." At the American Congress in 1908 he affirmed this view and stated in addition that "up to date in no case of pulmonary tuberculosis had the tubercle bacillus of the bovine type been definitely demonstrated." These statements of Professor Koch were frequently misquoted and were the cause of a bitter controversy which resulted in the appointment of several commissions to inquire into the matter. The extensive work of the British Royal Commission has now been published as well as many reports by other investigators on a smaller scale, and this controversy can be considered as pretty well settled.

In the first place, the evidence is conclusive that, so far as pulmonary infection in human beings is concerned, bacilli of bovine origin are of little significance. Two undoubted cases of infection with the bovine bacillus found by the British Commission were the only cases of such infection found in 709 pulmonary cases investigated by numerous observers. With surgical tuberculosis, especially in infants and children, the case is very different. The bovine bacillus, according to the studies of Park and Krumwiede, causes more tuberculous adenitis and abdominal tuberculosis in children than the bacillus of human type; while even in adults a significant proportion of the extra-pulmonary tuberculous infections are due to the bovine type. In this connection certain investigations undertaken to determine the presence and frequency of tubercle bacilli in market milk in large cities are of interest. Hess found, by means of animal inoculation, virulent tubercle bacilli in sixteen per cent. of samples of market milk taken in New York City. Tonney, conducting a similar investigation in Chicago, found bacilli in eight per cent. of his samples.

The controversy has thus established certain facts which give us a basis for our crusade for pure milk and for our endeavor to eradicate tuberculosis from dairy herds.

The frequency of tuberculous implantation in the human race has been variously estimated as anywhere from 4 to 99 per cent. The skin tuberculin test has given us a means of investigating this frequency, which has been made use of by several observers. The most extensive series of tests were reported by Calmette and others in 1911. They applied the skin test to 1,226 children from one to fifteen years of age. They found the test

Positive in	8.7 per cent. of those under one year of age.
	22 per cent. of those between one and two.
	54 per cent. of those between two and five.
	81 per cent. of those from five to fifteen.
	87.7 per cent. of those over fifteen years of age.

However, we know that notwithstanding the large number of children found infected only 24 per cent. develop clinical tuberculosis. In the remaining 66 per cent. the infection remains permanently latent or occult. It is an interesting question whether this large amount of symptomless and latent infection is not in reality a protection to the individual and one of the factors in the increasing immunity of the race to tuberculosis.

DIAGNOSIS.

Turning our attention now to diagnosis, we find that several new physical signs have been described. White and Van Norman have observed hyperalgesia of the skin to pain, heat and cold over an active tuberculous lesion. Petruschky found tenderness along the spine in certain early cases of infection of the lungs and bronchial glands. Wheaton has called attention to atrophy of the skin and Pottenger to muscular rigidity over the diseased focus. These signs are of little value and have not as a rule been confirmed by other observers.

Of greater interest are certain skin lesions known as tuberculides, which are found in tuberculosis in infancy. They have been described by Tileston as scattered discrete papules which, at the beginning, are the size of pin-heads and are soon capped

by tiny vesicles with cloudy or purulent contents. When the vesicle ruptures or dries up its place is taken by a crust and it is this stage which is most characteristic. The eruption may vary considerably both in the number, distribution and appearance of the lesions. In 70 per cent. of the cases Tileston was able to demonstrate tubercle bacilli in the lesions. These tuberculides are interesting but must be hard to recognize unless one becomes familiar with them.

Passing now from objective signs to a consideration of the part played in diagnosis by chemical and microscopical examinations, we enter a field where much of interest has been done in the past few years.

Considering first the examination of the blood, time does not permit us to discuss the work done by various persons on the differential leucocyte picture and on Arneth's classification of the leucocytes. Enough to say that apparently an increase above the normal in the relative number of lymphocytic cells indicates a good individual resistance.

We can not, however, pass over thus rapidly the astounding announcement made by Rosenberger in February, 1909. He found tubercle bacilli present in blood preparations in every one of fifty cases examined by him and concluded that "Tuberculosis in all its forms is a bacteremia; for even in healed or arrested cases the bacilli may be found." This statement, revolutionizing all our ideas of tuberculous infection, was the starting point for many individual investigations. A few others confirmed Rosenberger in his findings, but as time went on article after article appeared reporting negative results with Rosenberger's technique. Schröder and Cotton attempted to confirm Rosenberger's findings in tuberculous cattle but failed utterly. Sawyer went even further and injected tubercle bacilli in large numbers into the carotid artery of cattle. He was not able to recover any of these from the venous blood drawn one and one-half hours later; thus showing that the bacilli are rapidly removed from the circulation. In September, 1909, Brem, working in the Canal Zone on this matter, found acid-fast bacilli in the distilled water in his laboratory and suggests this source

as the cause of error in Rosenberger's experiments. These experiments have satisfied everyone, with the exception of Rosenberger himself, that tuberculosis is not a bacteremia and that tubercle bacilli are present but rarely if at all in the circulating blood. Whether the bodies that Rosenberger and one or two other observers saw were artefacts, acid-fast bacilli of other type or were in fact tubercle bacilli is undetermined. Thus has perished what one enthusiastic writer at the time spoke of as the most important and far-reaching discovery as to tuberculosis since Koch's own discovery of the tubercle bacillus twenty-seven years ago.

During the past few years several methods have been brought out which aim so to treat the sputum that the tubercle bacilli may be found more easily. The method of chief importance consists of digesting the sputum with antiformin. This substance dissolves the sputum and most bacteria but has no effect on the tubercle bacillus. The mixture of dissolved sputum and antiformin is centrifugalized, the sediment is washed and then stained and examined the same way as is a sputum smear. The method is also of use in the examination of pus, feces, chest fluid and autopsy material. Its performance requires considerable time and the result in ordinary sputum work is so little better than when repeated careful search is made from day to day that the antiformin method is not likely to be put to much practical use.

Another method of interest, while we are considering sputum examination, is the discovery made by Roger and Valensi that sputum from the tuberculous always contains more or less albumen, while in bronchitis or emphysema albumen is not present. Their work has been confirmed by several others. Unfortunately, while a negative albumin reaction thus appears to exclude tuberculosis, a positive reaction is of very little importance, as albumin is frequently found in the sputum of patients with pneumonia, bronchiectasis, etc.

Time will not permit me to consider the opsonic index, or the various methods of serologic diagnosis. Suffice it to say that they are unreliable and not practical for general use.

Many general articles on diagnosis from symptoms and physical signs have been written, most of which are merely repetitions of text-book information, with an occasional idea of more or less value thrown in. The work of the past few years has demonstrated conclusively the great value of the X-ray in early diagnosis. By the aid of perfected apparatus and stereoscopic photography very slight lesions may be detected. In fact the same criticism may be made of this means of diagnosis as of the skin tuberculin test; it is too delicate and, unless considered carefully in connection with symptoms, might lead to erroneous conclusions.

TREATMENT.

Coming now to recent developments in the treatment of tuberculosis and considering first, briefly, the hygienic-dietetic treatment, we can record a great advance. We have slowly grown away from the stuffing fad and are as a rule feeding our patients more sanely. Especially have we learned that an excess of proteid food places a dangerous strain on the digestive apparatus, the kidneys and the circulation. It has been shown conclusively that the average patient will gain satisfactorily on three ordinary meals with a little milk drinking between and with the aid of the one therapeutic measure which is of the greatest value to every patient with active tuberculosis—rest.

But to pass on to the use of drugs in treatment, I find a formidable array suggested. For the sake of the curious I will name some of them and thus dismiss them. Potassium bichromate, ichthyol, and oil of cloves have been suggested for oral administration. Hypodermic injection of eucalyptus oil and sodium cinnamate; intravenous injection of iodoform; inhalations of verdigris and inunctions of menthol have all been used with apparent success by those who have reported on them.

Two other suggestions can not be passed over so lightly. The first is Russell's and Ferrier's treatment by recalcification. They note the value of lime to the nutrition and its apparent ability to aid nature in healing tuberculous lesions. They aim, each in his own way, to increase the amount of available lime in the diet. Good results are reported by both.

In March, 1908, Wright, working at the United States Naval Hospital, New Fort Lyon, Col., reported excellent results from the treatment of tuberculosis by the deep injection of mercury succinimide. He was led to adopt this treatment by observing the astonishing improvement under mercurial treatment of tuberculous syphilitics. Nearly all the cases treated by Wright have been advanced or far advanced cases and he reports 89 per cent. improvement in these. Others who have tried this method do not as a rule share Wright's enthusiasm. Some admit that mercury is of value in certain cases, especially when there has been a syphilitic taint; others found no beneficial result whatever, and one, Hartz of Philadelphia, believes that "mercury as recommended has utterly failed as a specific agent in the treatment of pulmonary tuberculosis and is positively injurious and detrimental to one afflicted with the disease."

Passing from this consideration of drugs and false specifics we come to a form of treatment which is of great interest—the surgical treatment of pulmonary tuberculosis. The thorax is the last portion of the body to be invaded by the surgeon and it is only in the last few years that the pneumatic cabinet and other similar methods for producing variations in the air pressure have made surgery in this region practical.

The methods advocated for treating phthisis surgically may be divided into three groups. The first method is that advocated by Friedrich and his followers. He resects numerous ribs with their entire intercostal musculature, nerves and blood vessels. This operation he calls "pleuro-pneumolysis." It is indicated in patients who have unilateral involvement with cavities and the other lung in good condition. The theory of the treatment is to collapse and compress the diseased lung, thus obliterating cavities and reducing the amount of sputum and septic absorption. Recent metastases in other organs contra-indicate the operation. Normal functioning of the other lung is indispensable to success.

The second method is called chondrostomy and was advocated by Freund. It aims to mobilize the apex of the lung by severing the rigid first costal cartilage and is indicated in

slight apical involvement. Both these methods of procedure are very severe for a tuberculous patient to undergo and are indicated only in the most desperate cases. They have not been performed in this country, as far as I know.

The third method of surgical treatment, compression of the diseased lung by the production of an artificial pneumothorax, is much more practical and has been used quite extensively here and abroad. The pneumothorax is produced by the introduction into the chest through a canula of either nitrogen or sterilized atmospheric air. The air is introduced on the diseased side and causes a collapse of the diseased lung. As the air is absorbed rapidly it must be reintroduced every three or four days. The operation is indicated only when the other lung is normal or only slightly affected. It will not succeed if extensive pleuritic adhesions prevent the collapse of the diseased lung. This procedure seems to be of value not only to control the progress of the disease and reduce fever and cough but has been used with success in treating recurring hemoptysis.

TUBERCULIN.

Time will not permit me to review the work of the past few years on tuberculin therapy. Suffice it to say that the value and harmlessness of tuberculin has been amply demonstrated. I can not, however, pass over this phase of the subject without calling attention to the interesting work of Webb and Williams, who have succeeded in producing an active immunity to tuberculous infection by the inoculation of living tubercle bacilli in increasing numbers. After working for a while on guinea pigs they next inoculated twelve monkeys with the living bacilli in slowly increasing doses. The immunity produced was considerable. Early in 1911 they, at the request of the father, who was himself tuberculous, vaccinated two children with living bacilli without the development of infection to date. These experiments are bold and suggestive.

I have reserved until last the consideration of the various tuberculin tests, for the development and experimentation on

these make up a great majority of the work which has been done during the epoch which we are considering. The discovery of the conjunctival reaction by Calmette and Wolf-Eisner in 1907 was followed very soon by the discovery of the skin reaction by von Pirquet. Following the announcement of these discoveries, tuberculin was used in every conceivable dilution, using many different methods and numerous locations. The von Pirquet reaction through scarification of the skin suggested the Moro inunction test obtained by rubbing the skin with a tuberculin salve, and the intradermal test which is performed by introducing tuberculin into the skin itself. The conjunctival test suggested other mucous membranes and the mucosa of the mouth and even of the urethra and vagina have been utilized by enthusiastic investigators. Others by using tuberculin on the skin in various dilutions have endeavored to classify their patients by the intensity of the resulting reaction.

I can give only a short summary of the facts arrived at as a result of the many experiments with these various tests. It is generally agreed that the conjunctival test is dangerous and uncertain. The skin test of von Pirquet, except in the case of very young children, is too delicate for routine use. As regards the subcutaneous test I will quote from a recent article by Dr. Lawrason Brown on the "Specificity, Danger and Accuracy of the Various Tuberculin Tests." He concludes that "with the possible exception of leprosy, tuberculin is a specific test for the detection of tuberculous infection; that the danger from the use of tuberculin is slight but in some unsuitable cases very real and possibly severe. In practice, exposure to infection, characteristic symptoms . . . and localized persistent physical signs at one apex are diagnostic data of far more importance in clinical tuberculosis than that derived from the tuberculin tests. The subcutaneous test, depending as it does upon the reaction at the sight of the lesion, is still to-day the most reliable of the tuberculin tests."

In conclusion let us ask what are the most important developments in the realm of tuberculosis in the past few years. I believe them to be as follows:

1. Increased accommodations for the tuberculous invalid and the growth of the sanatorium idea.
2. The proof that bovine tubercle bacilli cause many forms of surgical tuberculosis in children and with less frequency in adults, and may even cause pulmonary infection.
3. The development of the X-ray in diagnosis and the relegation of the tuberculin tests to a place of secondary diagnostic importance.
4. The development of lung surgery; especially the demonstration of the therapeutic value of artificial pneumothorax.
5. The proof that the average patient will gain satisfactorily and do far better when fed moderately and sanely than when stuffed till the stomach rebels.

DISCUSSION.

DR. FRANK B. STANDISH (New Haven): *Mr. President and Gentlemen:* Of all the important methods of diagnosis mentioned by Dr. Bartlett, it seems to me that a great advance has been made especially in the X-ray work. It was mostly believed that it was impossible to take an X-ray picture of these small foci of tuberculosis in irregular locations in the thickness of the thorax; but recent work at the Phipps Institute has demonstrated that these small lesions may be detected by the X-ray, as well as by clinical methods. It is unfortunate that the method requires an expert radiographer to accomplish the result, and also requires a great deal of experience to interpret properly the radiographs.

In the line of treatment, one of the most interesting things at present is the method of compressing the lung by means of an artificial pneumothorax. The workers in this line have nearly all of them reported favorably of this procedure. At the present time, the operation of the creation of an artificial pneumothorax has not been done in early cases. Dr. Murphy has pointed out that these are the very cases that are most favorable for the procedure. If it is to be restricted to the advanced cases, the value of the procedure must necessarily be limited; for we all know that there are very few advanced unilateral cases of tuberculosis.

I quite agree with Dr. Bartlett in his conclusion that one of the greatest advances has been made in providing suitable hospital and sanitarium accommodations for these patients. There is a growing sentiment among the men doing dispensary work that we have treated too lightly the danger of contagion. We have been saying that the consumptive who takes care of his sputum is not a menace to the safety

of the community; but care of the sputum in a sanitarium, where there are nurses to see that the sputum cups are used, and where the floors are scrubbed frequently and the bed-linen changed often and sterilized, is quite a different thing from the care of the sputum obtained in the tenement-house district. We all know that tuberculosis is most prevalent in that class of cases. It is the general trend of opinion that the more we segregate the actively tuberculous, the more progress we shall make in stamping out the tuberculosis evil.

DR. LEONARD J. LOEWE (Falls Village): *Mr. President and Gentlemen of the Association:* One cannot help but be impressed, when one looks at the amount of work done in tuberculosis, by the evident uncertainty that is manifested in most of our tests; after we go to them for a thorough knowledge, they fall short. We start off enthusiastically on a certain line of work, and finally come to a point where we have to stop. One man has great results with one thing, or great with another; and another man will see another way. The trouble is that tuberculosis, being a general disease, and its mode of infection—its evident mode of attack—being so varied, it also being usually emphasized by some other trouble, this leaves it an open question how best to go at it. The different diagnostic signs always show a lack of something definite. The general practitioner is looking for something that he can put his hands on and, with a reasonable degree of certainty, can make use of in reaching a diagnosis. The only certain method, the only definite method that has yet proved worth while, is a physical examination, thoroughly made by a competent man. The fact that occasionally medical men will try to examine a case of incipient tuberculosis by merely opening a button in the front of the patient's shirt shows a lack of the proper knowledge of how to examine for tuberculosis, and proves why we have so many cases of this disease that get to an advanced stage without being detected. This shows that tuberculosis as it is to-day has nothing positive for its diagnosis.

The nearest thing to this, as proved by eminent men, is the tuberculin test. I do not agree with Dr. Bartlett that it is time to relegate that test to the lumber yard, when it has proved a failure in only seven to ten per cent. of all incipient cases, which shows that it is far ahead of anything that we have had yet. With a good physical examination and a unit dose of tuberculin, foci are brought to the surface so that you can detect them. The test does not merely give a rise in temperature. This is certainly worth while.

In regard to medical treatment, I would say that the different medicines are used more or less uncertainly. One man has the mercury treatment; the next, arsenic and iron. Usually these cases are of superimposed trouble, such as forms of anemia and syphilis, which more or less adds

to the original disease. A true tuberculosis alone will more or less give an immunity, if the other conditions are right; if the hygienic conditions are right, you can generally hold it off. Usually we hear of tuberculosis as being first manifested after an illness or a nervous break-down, or some condition causing the nervous system to have a shock. This means that the disease has been latent in that person's body. Dr. Bartlett has shown that in sixty per cent. of children it may be latent, and they may never show signs of clinical tuberculosis. At the proper stimulus, the disease starts in and does its work, usually after a depletion of the system. The fact is that we have no special specific, as yet; and the fact that tuberculin has done so much in cases in which tuberculosis has been the disease that was causing the trouble, leads us still to think that the most definite advance will be in the line of a tuberculin. Unfortunately, we have too many mixed infections, which we cannot take care of with tuberculin. Many men do not use it when there is at least temperature, because they fear the lighting up of an old focus or one that may be quieting down.

In conclusion, I would say that the sanitarium idea, having shown itself to be the one that has proved most beneficial, lends weight to the theory that betterment of the hygienic conditions, the improvement of the body, and the elimination of other conditions, giving the individual an opportunity to get some strength, is still the best method. We have nothing better. In the sanitarium treatment, the idea of rest has proved the most beneficial; but in cases later on, it will always be well to try to have also some little work.

DR. STEPHEN J. MAHER (New Haven): I have enjoyed this paper of Dr. Bartlett's very much indeed, and I think that we can all come to about the same conclusions that he has reached, except as regards one of them, in which I would agree with the last speaker that we are not yet prepared to relegate tuberculin to a place of secondary diagnostic importance. It seems to me that in pulmonary tuberculosis, of course, tuberculin has always been of secondary importance, and is now secondarily important to a proper physical and microscopic examination; but that in other forms of tuberculosis, particularly in children, the work of recent years would show that tuberculin is fast becoming of primary diagnostic importance, if I might be permitted to paraphrase Dr. Bartlett's expression. Perhaps the only criticism that I could make of the paper would be that in it, its title being "Recent Developments in the Diagnosis and Treatment of Tuberculosis," the whole subject of tuberculin has not been given the importance that it deserves according to the work being done everywhere. Personally, I am not enthusiastic about its use in pulmonary tuberculosis. Nevertheless, most of the work done since the Congress of American Physicians and Surgeons at Washington in 1910

that has been worth while has had to do, in one way or another, with tuberculin. In some countries, England particularly, there has been getting to be, within the last few years, a very strong feeling that tuberculin has been badly neglected. Some of the most prominent men now are seriously opposing the sanitarium idea, and are insisting that at least as good results could be obtained by the proper use of tuberculin at the dispensary and by home treatment. I am not prepared to subscribe to this view, but the thought of good men in the profession that are attending to advanced work shows that tuberculin is becoming of more importance than it was considered to be five or six years ago.

As a matter of fact, there has been no important development within the last few years in the matter of the diagnosis and treatment of tuberculosis. One new idea, perhaps, is in the use of gradual work as a therapeutic agent; and that really comes practically to a question of tuberculin. That is, the patient simply creates more tuberculin within himself, and gets the result in increased ability for work. Another idea that has possibly some promise of benefit is the preventatory idea in the control of the tuberculosis statistics. That is too big a subject to be discussed just now, but it would be interesting to discuss it at some other meeting.

DR. DAVID R. LYMAN (Wallingford): *Mr. President:* I can think of very little to add to that excellent review of the work that we have had recently on this subject, except that I should like to emphasize one of the very important things that Dr. Bartlett has brought forward. That is in regard to the etiology of tuberculosis, and the relation of bovine to human tuberculosis. When we are talking of stamping out tuberculosis, I should say that we have got to do more than we have been doing in regard to the eradication of bovine tuberculosis, if we wish to stamp out human tuberculosis. We are taking cases out of tenement houses and treating them; but in this State we have tubercle bacilli served up at the tables throughout the commonwealth every day, or in the nurseries to the children. If it has been proved that a certain amount of the cases of tuberculosis in children are due to bovine infection, it seems to me that we shall not make a big stride towards improvement in this State until we prevent the importation into Connecticut of tuberculous milk cows; and we shall not prevent that until the physicians of the State bring their friends and patients to the knowledge of the fact that this is a present danger and one against which a sentiment must be worked up in the community to compel the Legislature to do something. The last Legislature attempted to have a bill put through providing that a man could, at his own expense, have the State Veterinarian test his cattle and have the State give him a certificate as to their health. That bill was promptly killed. At the last Legislature there were lengthy

hearings on the subject of preventing the importation of tuberculous cows into Connecticut. It is a big question. To the farmer selling his milk at three and a half cents a quart and losing money, the change is a great one. The opening wedge is the stopping of the importation of the tuberculous cattle. He buys in the open market, and more than forty-three per cent. of the cows bought have been tuberculous. At the Wallingford dairy, forty-one per cent. of them were tuberculous; yet when we go to appear before the legislative committee at Hartford, the farmer gets up and says, "All this talk about tuberculosis in cattle is folly; I have never had a tuberculous cow in my stable." Then he adds, in the same breath, "They can't give it to people, anyhow; my wife and children never got it." Arguments like that will go further than any data. You can give them the statistics of the Department of Agriculture, showing only one per cent. of failure to find tuberculosis in thirty thousand autopsies on cattle and they will pay no attention to them. You should let the people know that there is a real danger from this source, so that they may demand that the Legislature pay attention to the matter; otherwise, you will not get anything done. The members of the State Medical Society can urge their friends and patients to let the members of the Legislature know that we have to strike tuberculosis at its source and stop bringing into the State new tuberculous cattle when the ones that we now have die.

DR. WILLIAM B. BARTLETT (Hartford): There is very little to say, except to assent cordially to Dr. Lyman's remarks and also to Dr. Maher's suggestion that the value of exercise in tuberculosis has been well demonstrated.

I must reply to Dr. Loewe and Dr. Maher in regard to the tuberculin test. I said that it was relegated to a place of secondary importance, not on account of its therapeutic value, but on account of its diagnostic value. Therefore, Dr. Maher's last remarks do not apply. I had in mind the various tuberculin tests, such as the skin and the eye tests. When you see cases such as I have seen, in which the only thing that had made the diagnosis was a positive skin test, there being no signs or symptoms, you will know that it is necessary to emphasize the fact that rubbing inunctions on the skin will not be sufficient to make a correct diagnosis. However, I am willing to stick to my remark that tuberculin is of secondary importance. They proved this point when they said that sixty per cent. of the patients had tuberculosis. All they need to do in that case is to treat the sixty per cent. that reacted to this test. These cases are not ones of clinical tuberculosis, however; so that, except in connection with the signs and symptoms and the history, the tuberculin test is of no importance.

Diagnosis and Complications of Atypical Pneumonia.

KATE C. MEAD, M.D., MIDDLETOWN.

The latest United States census records nearly as many deaths annually from pneumonia as from tuberculosis, and it also shows that deaths from pneumonia are increasing while the great white plague is declining. Statistics are often misleading, but they serve to indicate in this case the need of greater care in diagnosing pneumonia and more practical methods for preventing the disease.

Atypical cases of pneumonia may be confounded with tuberculosis, bronchitis, pulmonary congestion, pleural effusions, and even with influenza and appendicitis. It is easy to mistake suppressed breathing for pleural-effusion and to confuse suppressed fremitus, where the bronchi are filled with exudate, with absence of consolidation, and to mistake pleural friction for bronchial râles. No matter how carefully we may make our examinations, we must expect sometimes to make a diagnosis of pneumonia without any positive physical signs, especially in children. A fat chest-wall, a thin wall beneath which there has been old trouble, a deep-seated inflammation narrowly localized, and general external conditions in the patient's room, all make diagnosis of the exact position of the pneumonia difficult for the general practitioner. In the hospitals the keen ear of the specialist detects sounds which he suggests to the students to hear. The students listen and thump and guess, while the poor patient suffers. If we read over hospital reports of pneumonias we find that in nearly every case the patient is worse the day after admission and examination.

Most diagnosticians agree that pneumonia patients should be kept quiet, not allowed to sit up for examination, scarcely turned in bed, and treated with the greatest gentleness. How then is it possible to watch the changes in the lungs from hour to hour in

order to distinguish between crepitant and sub-crepitant râles, flatness or dullness of varying degrees, increased vocal fremitus or lessened resonance? Must we not depend in many cases for diagnosis and treatment upon the condition of the patient, his degree of toxæmia, or his resistance to the poison, and the extent of the disease rather than its localization or distribution? There are no rose-spots to confirm a diagnosis, as in typhoid fever, and no general bronchitis, as in miliary tuberculosis; but here we have a peculiar relationship of pulse, temperature, respiration, and blood-pressure, besides the general expression of the patient and his subjective symptoms, to guide us. In typical mild cases we could almost give a pneumonia patient absent treatment and predict the hour of his recovery. In atypical cases, with all the apparatus of diagnosis afforded by a great hospital, even such a genius as Osler may sometimes make mistakes, and cases are on record of surgical operations for supposed gall-stones, abscess of the stomach, and appendicitis, which proved to be simply lobar pneumonia without surgical complications.

Take, for instance, the question of diagnosis of lobar pneumonia in children: Holt¹ has seen this disease in an infant of three months, and he has seen many abortive cases lasting two or three days, as well as cases of delayed resolution lasting two or more weeks. Musser² says that in children positive physical signs may not become manifest until after the crisis. He also says that a one- two- or three-day pneumonia occurs oftener than we should suspect, and Still³ tells of a boy who died of pneumonia on the first day of the disease. Aufrecht says that many an ephemeral fever whose cause cannot be easily found may be pneumonia, and Broadbent⁴ reports a case of abortive crisis and premature resolution in forty-eight hours in which the after symptoms of toxæmia were severe. G. F. Still had a case of lobar pneumonia in a child nine and one-half weeks old, and he finds lobar pneumonia as common as broncho-pneumonia in babies of nine months and older. The onset may be quite like the beginning of scarlet fever; vomiting, convulsions, drowsiness, or delirium, so that unless the normal relation of pulse

and respiration is disturbed, or we have herpes with a cough, we might have to make our diagnosis by means of a blood test for pneumococci. If, as is quite common, there is a pleurisy with the pneumonia, the little patient will tell us where the disease is located, and our diagnosis will be easy.

If there is a delayed resolution in the pneumonia of children, our diagnosis may be obscured. Still has seen a crisis on the fifteenth day in one infant, and in another a pseudo-crisis in the early stages followed by a secondary rise and termination by lysis; in such children he watches carefully for symptoms of empyema, pericarditis, and meningitis. Such a pseudo-crisis occurred in a little patient of my own, a boy of ten years, who had many atypical symptoms such as abdominal pain and tympanites, delirium, absence of typical cough and sputum, and finally acute nephritis. During the first two days his temperature variations, and the sudden drop to nearly normal with profuse sweating, were like the symptoms of malaria.

The history of a case of delayed resolution of pneumonia in my practice is as follows:

Mrs. B., 57 years of age, was taken sick on November 30th with a slight chill, and a loud rasping cough, but without pain. For one month her temperature varied between 100° and 102°, her pulse was 100, her respirations were 18, caused by a left lobar pneumonia which did not clear up. On December 25th, she had a hard chill; her temperature was 104°, her pulse was 100, her respirations 18, diastolic pressure 80, and there were râles in both bases. The next day there were râles, coarse and fine, in both bases like those of a capillary bronchitis. Her blood examination showed reds 90, hemoglobin 100, leucocytes normal. Pneumococci were found in the sputum in great numbers. Repeated examinations showed no tubercle bacilli. On January 9th, her temperature having remained around 100°, and there being still numerous râles in the left base, an autogenous vaccine was given. This was repeated after twenty-four hours, and on the following day no more râles could be heard. Phlebitis, however, appeared in the left leg. Her urine had a specific gravity of 1.005, there was no albumen, no sugar, some urates, and some mucus. Forty-eight hours later she had slight pleurisy in the left lower lobe without effusion, and her temperature, which had been normal, rose to 100°. By February 1st, however, the patient was quite well except for an irritating laryngeal cough.

George W. Norris⁵ found this complication of delayed resolution recorded in only six out of 445 cases on the Philadelphia General Hospital lists; and G. M. Stewart⁶ reports a case of pneumonia lasting nine weeks, involving different parts of the lungs and pleuræ in turn; a condition which Osler calls migratory pneumonia. This is found more commonly in the colored race than in any other, and, according to T. McCrae,⁷ the pneumonia starts in the lower right lobe of the lungs.

On the other hand, in old or insane patients, instead of delayed resolution, we may find the symptoms of pneumonia delayed until just before death or actual recovery. Cough and expectoration may be absent, though pleuritis and bronchitis are both apt to be present, and convalescence slow. Kidd⁸ reminds us that pneumonia may come on insidiously in the old or insane, with or without chills, or nose-bleed, or typical fever, or typical lung signs, there being simply weak entry of air into the lungs, or some portion of them, without crepitation, but with delayed resolution for several weeks or even months. Broadbent reports a case of delayed resolution with fever and consolidation for six weeks. Such a condition is simulated by tuberculous pneumonia, chronic apical infiltration, interlobular empyema, and pleural effusion. Gentili⁹ calls latent pneumonia the most dangerous form of the disease, on the theory that the disease is latent because the patient is too weak to resist the pneumococcus. In this he evidently believes with T. G. McConkey¹⁰ that the inflammation in the lung is only secondary to the bacteremia, fibrin being deposited in the lung owing to the local removal of the CO₂ from the blood. It is to be remembered that resolution is accomplished through a process of autolysis like the digestion of proteids, this process being most active during the stage of grey hepatization. In unresolved pneumonia, the autolysis and leucocytosis are both low, and if the exudate is not absorbed, it must undergo either fibroid degeneration or suppuration, entailing either compensatory emphysema or heart-failure.

Besides these somewhat misleading forms, Musser and Norris (*loc. cit.*) enumerate nineteen complications of lobar pneumonia, beginning with albuminuria, which is found in 45.58 per cent.

of all cases, and ending with acute peritonitis, which occurs in only .34 per cent. of the cases. Among these complications I have singled out some which have been the subject of recent medical discussions. H. B. Anderson¹¹ reports a case of pneumococcic septicæmia following influenza in which the patient's arms and legs were sore and swollen. There was no cough, no expectoration, no acceleration of respiration, nor was the pulse rapid. There was no leucocytosis, but the patient's blood was loaded with pneumococci, and she succumbed to the disease. Several other skin complications have been reported in which there was a rash like erysipelas or erythema multiforme, and stomatitis, followed by desquamation of the surface of the tongue. Pneumococcic arthritis of one or more joints may occur in pneumonia, which in some cases causes empyema of the joint affected. One case was reported in which arthritis of the hip, nephritis, and empyema were all present. Pleuritis occurs in practically all cases, usually on the side of the pneumonia, but the friction rub may be difficult to make out. If an effusion occurs, it is on the fourth or fifth day. An effusion of 600 cc. has been recorded, but this, however, does not seem to influence the prognosis. Empyema is found in about five per cent. of the cases in some epidemics, and it is thought that the pneumococcus always produces pus on serous membranes. Moreover, 75 per cent. of all empyemas follow pneumonia, beginning during the stage of resolution. In one case 170 cc. of pus were removed from the cavity. This has often been confused with abscess of the lung, but abscess develops more slowly with increased pus in the sputum, becoming greenish and not always distinguishable except by the microscope.

Albuminuria is the most common complication of pneumonia, being found wherever there is much lung involvement. If it is due to the fever and a mild degree of poisoning it clears up promptly, but severe nephritis is found in 1.2 per cent. of the cases, of which one half die with uremia, œdema, and hematuria. Norris found nephritis sixteen times out of 445, of which fourteen died. He found the mortality from nephritis to be much greater than from any of the other complications of pneumonia,

reaching 57 per cent. Holt and Still have found few cases of serious renal disease in children, transient albuminuria being fairly common; they find that a high nitrogen excretion corresponds to a high leucocyte count, and therefore a low specific gravity of the urine indicates danger. I have had two cases of nephritis complicating pneumonia, one in a boy, the other in a woman above middle age. The boy's case is as follows:

February 13, 1911. Bernard D., ten years old, previously healthy, had a severe chill with vomiting. His pulse was 100, respirations 40, temperature 106°. He complained of severe pain in the abdomen, his abdominal muscles were tense, and he coughed incessantly. The upper left lung was dull. The following day his worst symptoms were diarrhœa and vomiting, his temperature had dropped to 99° and 100°, his pulse was 80, respirations 25, and he felt much better. The next day, however, he had another hard chill, his temperature went to 105°, pulse 104, respirations 32. His hands and legs looked mottled; the pneumonia was progressing normally. The fourth day the lower left lobe became affected and he had pleuritic pains. His leucocytes were 18,000, his pressure 90. There was no sputum at any time. Albumen was found in the urine on the fifth day. The pain in the abdomen and the diarrhœa and vomiting continued, and he became greatly emaciated. The lungs were fairly clear by the seventh day, but on account of the abdominal tenderness he was watched carefully. On the seventeenth day his face, hands, and feet were œdematous. The urine contained albumen, pus, casts, and blood. His leucocytes were again found to be 18,000. A fresh spot of consolidation was detected in the left axilla, and his stomach was still very irritable. On the thirtieth day the urine was noticeably smoky, but all the symptoms were better, his appetite good, and he began to improve steadily. One month later the urine was perfectly clear, with no albumen or blood or casts, and he has been well for more than a year.

My second case of nephritis was Mrs. B., who had been suffering from chronic nephritis and cystitis, with pus in the urine for five years; she had had occasional attacks of severe pain over the right kidney accompanied by low fever, and occasional prolapse of this same kidney which caused colic. Her normal blood pressure was 140-150 mm., her pulse generally quite irregular, and she had the cardiac murmurs of mitral stenosis. In October, 1909, after a picnic where she was exposed to cold and rain, she had a long chill with intense pain over the right kidney again, and a great increase of albumen and pus in the urine.

Her temperature was 100° to 104°, pulse 80 to 90, respirations 20. During the following three days all the symptoms remained as at first, with

the addition of intense pain over the liver, especially along its lower edge, and marked abdominal tenderness. On the fifth day the pain at the lower edge of the liver increased, the pulse also increased to 120, the respirations to 30, and an area of consolidation was found in the posterior right lower lobe of the lung. The specific gravity of the urine was 1.016, it contained 3 per cent. albumen, 2 per cent. urea, some indican, hyaline casts, pus, epithelium, and urates, and gave the Diazo reaction. During the next two days, the symptoms of pneumonia increased and the temperature fell to sub-normal, while the pulse increased to 140, and the respirations rose to 40; the pain then subsided, and the blood-pressure fell steadily until death.*

Another complication of pneumonia, bronchitis, is said to be practically always present. It may be the initial infection and the more serious of the two diseases. Morris Manges¹² reports the case of a robust girl of twelve who apparently had recovered from a severe bronchitis, when three days later he found a fully developed pneumonia of the base of her left lung without any change in pulse or temperature and no systemic symptoms. A. S. West¹³ has found that bronchitis following pneumonia is almost always fatal, acting like a secondary congestion of the lungs in patients too feeble to throw off the disease. Ashby¹⁴ believes that the pneumococcus plays the chief rôle in broncho-pneumonia, having spread to the bronchi from the lungs by contact, rather than from the blood stream. He reported a case of pneumococcic meningitis in a child which ran a subacute course like broncho-pneumonia.

There is often in pneumonia an accompanying infection of the heart, especially if there has been an antecedent endocarditis. Both systolic and diastolic murmurs at the base are common, and there is often a thickness of the first sound at the apex. Acute endocarditis has been attributed by Norris¹⁵ to pneumonia in 22 per cent. of his cases. Preble (quoted by Norris) states that the pneumococcus is something over twice as apt to involve the aortic valves as other bacteria and about one-third as apt to

* From a study of fifty cases of pneumonia Robertson and Illman find that nephritis, when preëxisting, is of grave prognostic import. Wm. E. Robertson and G. M. Illman, "A Preliminary Report of the Value of Bacterins in Pneumonia." *Penna. Med. Journal*, Jan., 1912.

involve the mitral, while it attacks the tricuspid twenty times as often. Pneumococcus endocarditis is twice as common in women as in men, large, friable, pedunculated vegetations are formed which leave small ulcerated surfaces, thus differing from streptococcus infection, but pneumonia and puerperal sepsis both cause the malignant variety. Norris (*loc. cit.*) finds pneumococcic endocarditis rapidly fatal, three months being the general limit of the disease. C. E. Cornwall,¹⁶ on the other hand, says, "The specific toxin of pneumonia does not seem to be regularly a serious disturber of the heart in the sense that the toxins of diphtheria and influenza are such." Norris (p. 40) adds, "In all cases of valvular damage the amount of calcium ions in the blood plays an important part in the degree and extent of the lesions produced. This process of calcification is Nature's method of repairing weak spots and leaks, but as in other conditions, Nature often overdoes her work, and in the case of mitral stenosis the calcium ions raise blood pressure, intensify the flapping of the diseased valves, increasing their injury and actually cementing their edges." This was probably the cardiac condition of my elderly patient with nephritis mentioned above, as well as of two of my oldest patients.

Another complication of pneumonia, pericarditis, is often found at autopsy, even in half the cases reported by some pathologists, but during life the pericardial friction is very difficult to distinguish from breath sounds, râles, and pleural friction.

Among the other rarer complications of pneumonia is pregnancy. I have been able to find collected reports of only 352 cases of this kind, of which 70 per cent. died. One half of all the patients aborted on the third day. The general mortality from pneumonia is only 2 to 20 per cent. of all cases, so that this high percentage in pregnancy shows us that the patient can not eliminate the poisons of pneumonia and nourish her foetus at the same time, because of the accumulation of CO₂ in the blood, a diminution in her hemoglobin, and an overloading of her right heart, added to the extra strain of abortion which is probably due to endometritis. I am able to report the 353d case of this complication, of which the history is briefly as follows:

This patient, Mrs. O., seven months pregnant, was suddenly seized with a violent chill and fever on February 27, 1910. Her temperature was 102°, pulse 120, respirations 28, and she had severe pain in the left chest. The following day the breathing in the left lower lobe was bronchial, she had bloody sputum, temperature 103°, 99°, 101°, and she still suffered intense pain in spite of opiates. A dose of autogenous vaccine brought the temperature down to 99° and relieved the pain, but she began to be cyanotic from failure of the right heart, and died early on the third day with no sign of aborting, and no indication that any of the medication reached her heart.

This patient may have been predisposed to pneumonia, for her brother died of this disease in her house six months earlier, and within a few months of the death of this patient, her sister and two children, in the same house, had pneumonia complicated with jaundice.

Jaundice is usually a very serious complication of pneumonia, causing a mortality of 73 per cent., but in these three cases the liver was not tender and there were no other symptoms of jaundice save the yellow color all over their bodies. This accords with the report of Dr. McPhedran,¹⁷ who experimented on the blood of fourteen cases of jaundice in pneumonia and found no evidence of special changes in the liver, even at autopsy; but he obtained proofs of the hemolytic power of the pneumococcus, as well as its power of producing bile pigment in the lungs from the red blood cells during the stage of red-hepatization. Why this hemolytic action and jaundice is not seen in all patients is not determined, but Lemièrè,¹⁸ in three cases, found pneumococci in the bile accompanied with degeneration of the liver cells as well as inflammation of its vessels and ducts, and he believes, therefore, that all pigment must come from the liver instead of from the lungs. I am simply able to give a brief history of these three patients without any theory as to the cause of their jaundice.

December 27, 1910. These patients had been ill several days, but were able to be dressed and around the house. They were all jaundiced, feverish, and coughing. The temperatures were all much alike, 101°-102°, pulse 80-90, respirations 26-30. The cough was loose and the sputum greenish. The lungs were clearing, the bronchi full of râles.

The following day they had an erythematous rash, clay-colored stools, and bilious urine; the rash became blotchy and full of punctate spots, and they complained of slight tenderness over the stomach. Two days later the temperatures became normal, and gradually the jaundice faded. There was no desquamation in any case. The sputum contained many pneumococci, and doubtless the sickness had been caused by primary pneumonia.

One of the most serious complications of pneumonia is meningitis, 99 per cent. of all cases being fatal, according to McCampbell and Rowland.¹⁹ If the cerebral symptoms come on first and predominate, what is more natural than to overlook the pneumonia? A. Ely²⁰ reports a case of meningitis in which pneumococci were recovered from the spinal fluid forty-eight hours before any signs of pneumonia were found. Pridham²¹ has reported another case of meningitis with middle-ear inflammation in which, on the third day, he found a patch of consolidation in the right axilla, the crisis occurring two days later. Holt²² refers to the difficulty of diagnosis in these cases where meningeal symptoms and otitis media seem to be the whole trouble. He found that 11 per cent. of the cases of meningitis in the Babies' Hospital, during the five years in which lumbar puncture had been systematically made, were of the pneumococcus type. Half of them died, the disease having only a short run of three to six days. Two thirds of these babies were under nine months of age, and in some of them there was no opisthotonos, no irregularity of the pulse or respiration, with some distension of the fontanel. That many cases of pneumonia have some meningitis without distinctive symptoms is held by G. Liebermeister.²³ Meningitis occurs in one fourth of one per cent. of all pneumonias, particularly in children and old people, frequently coming on between the third and seventeenth days. Drowsiness and delirium are common at the onset. Convulsions early are not serious, but later they are due to the toxæmia just as delirium is, and like delirium convulsions are then more serious, especially if accompanied by a soft rapid pulse.

It would be interesting to recall the dreams of the delirium in pneumonia; dreams of old people concerning little children have seemed most common in my cases. I recall one patient who dreamed for two

days constantly whenever she fell asleep of processions of little negro children around her bed until they walked over her and then jumped into space, at which she wakened with a start. Another old lady dreamed of children climbing a May pole, and as they fell from the top she too wakened with a start. In another dream the children were plaiting hair wreaths for a funeral, and at a given moment the funeral procession would be halted and the patient would waken. This same sort of dream of processions kept two delirious children busy for the greater part of two days.

I have seen one case of pneumonia with marked meningeal symptoms in a little girl five years old.

On April 18, 1911, she suddenly became delirious after a few hours of tonsillitis; temperature 103° , pulse 160, with consolidation at base of right lung. The following day she was still delirious with her head drawn back and with frequent vomiting. Her temperature varied from hour to hour between 102° and 104° . The abdomen was distended and very tender. The third day there was considerable tympanites, pulse 130, respirations 40, and temperature changes slight. On the fifth day the temperature fell to normal, soft râles were heard all over the right chest, the abdominal distention was relieved, and she had a little appetite. On the ninth day the pulse was 90, dropping one beat every minute. From that time she had an uneventful recovery.

There have been reported only nine cases of mania following pneumonia. W. J. H. Tyson²⁴ reports three of these, and P. Kidd²⁵ reports three others. The mania occurs after the crisis, in cases of moderate severity, in people under middle age and of nervous temperament, and is more or less severe according to the degree of sleeplessness of the patient. The prognosis is good, the mania running a short course. Such a case I shall report under a different complication (phlebitis), but the patient's symptoms were briefly these: slight fever until third day, no pulse above 70, no pressure above 100; mania for three days beginning on the fifth day; no sputum; tongue dry and brown for 21 days; neuritis, phlebitis, and thrombosis occurred as later complications.

Another nervous complication of pneumonia is neuritis. This is probably also of toxic origin, and may involve the brachial plexus, or the phrenic nerve and cause hiccough, or cause multi-

ple neuritis such as numbness of the finger-tips, girdle sensations, or trouble with the facial nerve, or irritation of the vocal cords. Thomson²⁶ reports his own case, in which the pneumococcus attacked almost every part of his body except the heart and lungs. He was paralyzed first in his arms, then in his legs, then in his tongue which later desquamated, and all these paralyses were transitory like those following diphtheria.

Another nervous complication of pneumonia is hemiplegia, which may be embolic or toxic. One of my patients died from general paralysis following pneumonia. The history of her case is as follows:

Mrs. J. O., age 89, had been an invalid all her life. She had recovered from endocarditis six years previously, but was always suffering from bronchitis, or palpitations of the heart, or cystitis, or retinitis. On January 1, 1911, she had a severe chill, temperature 103°, pulse irregular, 100-80, respirations 38-30, lungs full of râles, and bloody sputum; all these symptoms having occurred simultaneously. During the following two days there was not much change except for a little delirium. On the fourth day the temperature dropped to normal, the pulse became strong and regular, the blood pressure was 160; her cough was slight, mind clear, appetite and digestion normal. On the fifth day the lungs were nearly clear, but the pulse became again irregular, delirium returned, the lower part of the body was paralyzed, and the bowels could not be moved. The sixth day her face was purple, its muscles twitching constantly. She was in a state of stupor and the abdomen became tremendously distended. On the seventh day she seemed to rally again somewhat but had involuntary stools and urination. On the eighth day she had sub-normal pulse and temperature, and her pressure was 120 mm. On the ninth her respirations rose to 60, pulse to 140, and she died.

This complication is not rare. Hector Mackenzie (1907) found thrombosis in one out of 150 cases of pneumonia. Steiner²⁷ collected reports of three cases of venous thrombosis in pneumonia out of a total of 658 patients treated at the Johns Hopkins Hospital. Of these the greater number of thrombi were in the left leg, probably starting in the small peripheral veins, owing to poor circulation, then spreading to the large veins, and from there small thrombi being perhaps carried to the lungs or brain. Five of these patients died of pulmonary embolism, and one case of popliteal thrombosis necessitated

amputation. Legs, eyes, fingers and toes have been lost from this cause. Steiner found in the cases which he examined that there was a decrease of red-blood corpuscles and an increase in the fibrin element, so that he suggests as the cause of the thrombosis this altered blood, which also contained pneumococci acting on previously injured blood-vessels. One other causative factor perhaps is the increase of CO_2 in the blood, owing to the quickened respiration. In two of my cases where there were symptoms of embolism in the brain, one died, age 89; the other recovered, age 87. Still another, age 100, died from heart clot. And one, a man of 60, recovered from phlebitis of the leg after a long convalescence. Thrombosis and phlebitis are well illustrated by the following case, to which I have referred before:

Mr. R., age 60, was taken sick January 21, 1911, with pains in the chest. His temperature was 100° , pulse 60 and very soft; fine râles could be heard all over the right chest. His tongue was dry and raw. Three days later the temperature rose to 103.6° , pulse 70. He had no cough and was drowsy or stupid most of the time. On the fifth day his temperature was 100° - 101° , pulse 66, respirations 30, and still he had no cough though he began to be delirious. The next day his temperature was normal, but he was in active mania. Two days later he was again rational, pulse 56, respirations 30, without any cough, although the right chest was full of moist râles. His leucocytes were 30,000, and his systolic pressure 100 mm. On the tenth day he complained of heaviness in his left leg, which was swollen and cold in its entire length. For several days large knots were visible in the calf of this leg, which was very tender. His temperature was normal, his pulse 50, his heart sounds were all good. His tongue was very beefy, and his lungs clear. One week later he had neuritis in both ulnar nerves and this symptom lasted for some months. The phlebitis gradually subsided, however, but he has never regained his strength.

The history of a patient who died of cardiac embolism with pneumonia is as follows:

Mrs. R., age 100 years. This old lady was in a perfect state of preservation, active, bright, and energetic. Her only infirmities were atony of the bladder and deafness. Her urine was ammoniacal and high colored, having a specific gravity of 1.025, but contained no trace of albumen or sugar. Quite suddenly one morning she had a hard chill with faintness and profuse sweating and complained of a severe pain

under her left shoulder blade. Her pulse was 120, very irregular, her temperature was 101°, accompanied by dullness in the left lower lobe of the lung. In the evening she felt better, was bright as usual, her pulse was 86 but still irregular, her respirations 26, and her temperature 100°. The next day there were large bubbling râles over the whole left chest; her temperature was 100°-101°, pulse very irregular, 100-126, and respirations 30-46. At this time the most distressing symptoms were tympanites and a pain under her left shoulder; she had no cough or expectoration, but her symptoms became more intense, and she grew more and more restless while her blood pressure became lower and the distention of the abdomen greater. She died in coma on the early morning of the third day.*

One of the more common complications of atypical pneumonia is abdominal pain simulating appendicitis or peritonitis. Many writers have recorded a tenderness and rigidity of the abdominal muscles as tense and painful as in appendicitis or perityphlitis, and diagnostic errors in these cases may sometimes be unpreventable. One comfort, however, remains to the diagnostician in such cases: 80 per cent. of those operated upon recover. Still (*loc. cit.* p. 329) says, "A common complaint at the outset is pain in the abdomen, no doubt due to diaphragmatic pleurisy." Children frequently insist that the pain in the abdomen is their only trouble, and not for several days is the pneumonia discovered. Three of my little patients had abdominal symptoms before any pneumonia symptoms, and in one case, that of a child of three years, there was nothing but appendicitis indicated until the fourth day, when a consultant discovered flatness in the left side of his back and drew off a sample of clear fluid from the pleura to prove his diagnosis.

Dr. Morse²⁸ mentions two instances in which operation for appendicitis was done upon children suffering from pneumonia and the appendix was found to be normal. Still, on the other hand, found the converse true in a girl of ten who was thought to have pneumonia until there was actually seen a tumor in the

* "The diagnosis of coronary artery thrombosis or embolism is at best a question of probabilities." The precordial pain, oppression, rapidity and weakness of the heart's action, with marked irregularity, are considered symptoms of this condition. See George Blumer's article; "Thrombosis, Embolism, and Phlebitis," in Osler's Modern Medicine, Vol. IV.

right iliac region, which at the operation proved to be inflammation of the appendix and abscess. Morris Manges²⁹ has reported two cases which he diagnosed as hepatic or sub-phrenic abscess, in which after two or three days the pain was proved to be reflex due to consolidation in the right lower lobe of the lung. Bennecke³⁰ reports a case of a boy of ten operated on for appendicitis in whom a normal appendix was found, but several days later pneumonia showed itself in the left upper lobe. He found in the medical clinic at Jena twenty-one cases of pneumonia which at first seemed to be appendicitis and in which there was no real abdominal trouble. Dr. Tyson reports a case of a child treated for pneumonia who was operated on for appendicitis as soon as the pneumonia was cured. Dr. Melzer reports a case of pneumonia operated on for gall-stones. Dr. S. Solis-Cohen reports a case of pneumonia mistaken for gastric ulcer because of vomiting of blood-streaked mucus, together with epigastric pain and tenderness, and also three cases referred from the surgical ward to the medical because of mistaken diagnosis. Melchior³¹ differentiates pseudo-appendicitis from pneumonia by the relatively slight pain on deep pressure in the former, and the pulse, temperature, respiration ratio in the latter; the pain in pseudo- or reflex-appendicitis being a skin pain and quite superficial. In one case operated on by him for gastric ulcer, however, there were no symptoms of pneumonia, but great pain in the stomach with bloody vomiting. The abdomen was negative. Vomiting was a marked symptom in ten cases of pneumonia operated on by him by mistake, two of whom died. By way of explanation he says, "Vomiting is very rare in the pneumonia of adults, and not even in the axilla in these cases were there signs of consolidation." It is a relief to find one's mistakes excusable and in case of doubtful diagnosis to find companions in misery. The patient whom I reported with nephritis had no sign of pneumonia until the fifth day, while she had intense abdominal symptoms before that.

Appendicitis and peritonitis may, however, be caused by the pneumococcus. Osler³² says: "A catarrhal form of appendicitis may occur coincident with the pneumonia. In other instances

the pain may be in the region of the pancreas, associated with meteorism and high fever, so that acute hemorrhagic pancreatitis may be assumed as in one of Halsted's cases in 1905. All the symptoms were abdominal and the apex pneumonia was not discovered." Norris (*loc. cit.*) says that primary peritonitis due to the pneumococcus is not rare, and the inflammatory process may become encysted and rupture into the umbilicus or intestine. It is found in 3 per cent. of reported cases. Peritonitis was found in 21 out of 971 autopsies at the Pennsylvania Hospital, the primary, isolated form being more common in children, the secondary, diffuse form in adults. One case was reported of hemorrhages from the intestines due to pneumococcus infection, showing once more the complexity of this problem. Dr. Harvey B. Stone³³ reports an interesting case of pneumococcus peritonitis. The patient was a child, five years old, who had had pneumonia two years before the present attack, with chronic otitis media during the interval, and at this time there was an acute otitis two days before the onset of peritonitis which began with nausea, vomiting, diarrhea, abdominal pain, and a fever of 104.5°. The breathing was short with no abdominal motion, there was pain around the umbilicus, and some rigidity of the rectus muscle. The lungs were clear. The abdomen was opened and found to be full of thick greenish yellow odorless pus. No lesion could be found to account for the pus, no sign of any abscess. The pus was full of pneumococci and the patient died some hours later of profound intoxication. This disease was first described in 1885, and since then more than 120 cases have been reported as well as many other cases of peritonitis without ascertainable cause. Moreover, these gastro-intestinal symptoms are very common in children, with vomiting, diarrhea, tympanites, and meteorism, and they add greatly to the seriousness of pneumonia. Dr. Triboulet, at a recent French Medical Congress, drew attention to pneumococcus septicæmia as represented by duodenal catarrh with or without otitis, or pleurisy, or symptoms of pneumonia, and he believes it is more common than is generally diagnosed. The mode of infection may be operative, or through the diaphragm, or from the blood and lymph.

One other abdominal complication has been reported by Fussell of Philadelphia; he has seen eleven cases of acute dilatation of the stomach in pneumonia which might have been mistaken for abdominal distension, but which were easily relieved by the use of the stomach pump and gastric lavage.

Besides these serious complications of pneumonia there are several others of perhaps less vital importance which might obscure the diagnosis and make the disease atypical; sinusitis and conjunctivitis, for instance. According to H. G. Beck³⁴ infection of the nasal sinuses is found in 28 per cent. of cases not dying of pneumonia and in 92 per cent. of fatal cases, this sinusitis being the probable cause of meningitis. Beck also found fifty-six cases of mucopurulent conjunctivitis among the reports of pneumonia. This pneumococcic conjunctivitis is well known to ophthalmologists. It occurred in two of my pneumonia cases last winter.

Mrs. C., age 60, had been suffering from bronchitis for a month. She was very fat and had an old pleuritic friction rub on the left side. The first sound of her heart was dull, the second accentuated. On February 1st she was suddenly taken ill with right lobar pneumonia with crepitant râles, dullness, etc., her temperature was 102°-103°, her pulse 100. On the third day, after two doses of vaccine, the pulse, temperature, and respirations were normal, she was expectorating bloody sputum, and resolution was very marked. On the 12th, after a quick convalescence, she had intense conjunctivitis in both eyes which was probably pneumococcal, for it promptly subsided the next day after one dose of vaccine. The other case was in a student who developed conjunctivitis on the third day after the crisis of pneumonia.

Acute otitis media may also appear at any stage of the disease as a coincidence or secondary affection.

Turning now from the complications of atypical pneumonia, let us note some of the danger signs in the disease. A falling blood pressure with quickening pulse and tympanites are most serious symptoms, and indicate profound shock. Delirium, stupor, and coma soon follow these symptoms, together with cyanosis and dyspnoea indicative of failing right heart. Gordon³⁵ says, "When the arterial pressure, expressed in mm. of Hg,

does not fall below the pulse rate per minute, the prognosis is good." This of course presupposes a knowledge of the normal arterial pressure of the patient. Osler says, "The blood-pressure in pneumonia should follow the pulse." . . . "Death is most frequently due to the action of the poisons on the vaso-motor centers with progressive lowering of the blood-pressure; rarely to direct obstruction in the lungs." Hare also emphasizes the danger shown by lowered arterial pressure with increased pulse rate, and suggests efficient remedies for this condition before the heart itself shows failure. In children the blood-pressure and pulse rate are not as infallibly adjusted to each other, the pressure being low. In one of my most serious cases, that of the little boy of ten, with acute nephritis, the pressure was at one time 60 mm., while the pulse was 100 and over.

Alexander Lambert³⁶ made observations on the blood-pressure of forty-eight patients suffering from lobar pneumonia, between the ages of thirteen and seventy-eight years, eleven of whom died. In mild cases the pressure was 120-130; in some young adults the pressure fell in convalescence to below 100, in others it rose after convalescence. In no case did he see a sudden fall at the crisis, and in twenty-eight of these cases he could not find that the ratio between the pulse and pressure followed Gibson's³⁷ rule. Lambert, however, finds that vaso-motor paralysis is not the only cause of death in pneumonia, a brown friable heart muscle being equally fatal.

Mackenzie says that the most serious symptom in pneumonia is an irregularity of the pulse; even an occasional irregularity before the crisis means the death of the patient, and he has rarely seen an adult with a pulse of 140 who recovered. This was the case in my hundred-year-old patient.

It is said in explanation of these symptoms that the pneumococcus paralyzes the vaso-motor center; this causes dilatation of the splanchnics and fall of blood-pressure. In its turn this causes the heart to work harder for what blood it gets from the rest of the body until it becomes exhausted, its right side becomes dilated and stops as soon as the other nerve centers become asphyxiated and paralyzed, the order of symptoms being, tym-

panites, irregular, rapid pulse, delirium from cerebral anæmia, restlessness, stupor, and coma.

Much interesting laboratory work has been done to find out the cause of pneumonia and the relation of the pneumococcus or other bacteria to the disease and its complications or sequelæ.

There is a discrepancy between the reports of the finding of pneumococci in the blood stream, owing perhaps to different technic. Some investigators find 9 per cent. and others 25 per cent. The cultures are said to die out after forty-eight hours, so that the bacteria in the blood may not be so numerous at certain stages of the disease as others, although they have been found in the blood two months after recovery. Holt says that pneumococci are found in children's blood less often than in that of adults. Flexner has shown that the pneumococcus may kill without causing any lesions whatever. A case was reported in which the pneumococcus was recovered from the blood of a patient having the temperature, pulse, and pressure of pneumonia without any demonstrable lung lesions. Holt made a series of investigations at the Babies' Hospital to see what bacteria were found in the sputum of 124 cases of pneumonia. He found:

B. influenza	47 times.
Pneumococcus	94 times.
Streptococcus	63 times.
Staphylococcus aureus	116 times.

The latter was most often found in the broncho-pneumonias, the former in cases complicated with ear and throat infections and unresolved pneumonias. It is said that the more kinds of bacteria in the sputum the worse is the prognosis, especially if there are tubercle bacilli and pus with much blood, but in all the cases where I have used autogenous vaccines, there have been found pneumococci and staphylococci, micrococcus catarrhalis and micrococcus tetragenous.

To antagonize these bacteria there is a great increase in the leucocytes in a normal case of pneumonia. Norris gives 57,000 as the highest recorded leucocyte count. This was in a case complicated with phlebitis followed by abscess of the lung and

recovery. A high leucocytosis, like a high fever, is a good sign. The count may be between 12,000 and 40,000, but the prognosis is best when the count is between 15,000 and 20,000. The only cases I have counted were the little boy who had nephritis, whose count was 18,000 before the crisis, and the relapsing case with delayed resolution and laryngitis, in which the count was 20,000 at the height of the disease. The clotting time of blood in this disease was found to be eight minutes in a series of forty-seven cases of all degrees of severity.

Important laboratory work is being done on pneumonia, especially notable being that of Rosenow,³⁸ who has studied the lung exudate during life and in some cases after autopsy. He found pneumococci in the smears taken from lung tissues during the early stages of pneumonia and up to the crisis in greater or less numbers according to the severity of the case, which corresponded with the number of organisms he found in the blood. Early in the attack he finds that large mononuclear cells are few, but toward the crisis they multiply and then become markedly phagocytic for leucocytes. In lungs immediately after death he has found as many as four leucocytes, each containing disintegrated pneumococci, in one mononuclear cell. Resolution may seem to go on whether there are any pneumococci or not because the bacteria may have lost their poisonous property or virulence. Rosenow also found that the number of living cocci in healing lungs was amazingly smaller than in those cases that died, which proves that after the fermentation or digestion of the bacteria, and the phagocytic action of the large cells in removing the cell remnants, there was of course nothing left to be seen. He then took up the question of the toxins of pneumonia.³⁹ In his opinion, "clinical observations go to show that many toxic processes of bacterial infection may be explained on the basis of anaphylaxis" (p. 194). Intoxication probably occurs after the interaction between bacterial protein (antigen), antibody (amboceptor or immune serum) and complement (in the normal serum of the host) has taken place. This highly toxic substance is called anaphylatoxin. "This pneumococcus anaphylatoxin depresses the leucocytic mechanism" (p. 210). But

autolyzed pneumococci, from which this substance has been removed, have the power of stimulating leucocytosis. Therefore, when the digestion of pneumococci is poor the toxins are liberated in abundance and leucopenia follows, and vice versa. Virulent pneumococci have in themselves a proteolytic enzyme which splits their protein into a highly toxic substance. This is the cause of sudden poisonous effects of the pneumococcus without localized symptoms in the lungs. The early dyspnoea and quickened respiration are results of this poison. The crisis in pneumonia is, perhaps, a reaction against anaphylatoxin by the development of enzymes which split this toxin into non-toxic products.

Preston Keyes, of Chicago, is working on fowls, which are immune to pneumonia, in order to produce from them a pneumococcus serum containing these toxin-splitting enzymes. Let us hope that he and Rosenow and other workers will be successful in finding an antitoxin, for here in Connecticut, during the winter months, pneumonia leads all other diseases as a cause of death. During March, 1912, there were 289 deaths from this disease alone. Dr. William Hanna Thomson of New York (*loc. cit.*) says, "For variety in pathogenic powers commend us to the pneumococcus." In one case quoted by him twenty cocci proved fatal to rabbits, while in another case 100,000 cocci, morphologically just the same, were not fatal, showing that virulence varies greatly among pathologic organisms, particularly the virulence of the pneumococcus. Vallack⁴⁰ suggests that pneumococcus pneumonia is always more serious, entailing more complications than the pneumonia caused by a certain gram-negative diplococcus which he studied.

In conclusion, therefore, for the diagnosis and prognosis of atypical pneumonia, we must examine the blood as carefully as the lungs, and for a guide to treatment we must watch the Romberg-Paessler sign in order to counteract falling pressure or failing right heart by the proper remedies, until we shall have a serum or vaccine or antitoxin as reliable as that for diphtheria. An anonymous writer⁴¹ sums up these necessities as follows: "To determine by culture the precise organism that is causing

a patient's malady; to learn by examination of his blood-cells the exact condition of his resisting powers; and to increase these by carefully graduated doses of his own bacteria, holds the sure key to future victories. We have still the mysteries of the anti-bodies and a very complicated technique in solving them, so that the sooner we harness ourselves to some bacteriologist-brother or sister, the better will be our success with our patients. Perhaps I should include in our harness a chemist, and the question of who's to be in the front will be one of courtesy."

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DISCUSSION.

DR. FRITZ C. HYDE (Greenwich): *Mr. President and Members of the Society:* We have all encountered the difficulties in regard to the diagnosis of atypical pneumonia of which Dr. Mead has spoken; and these difficulties have usually, in my experience, arisen in cases of central pneumonia with physical signs that were obscure. The mistakes rather seem to have usually occurred when careless physical examinations have been made; and I deplore the custom of some physicians in making a diagnosis of pneumonia in cases in which no physical signs of that disease can be found. In such cases, the leukocyte count often gives us a valuable hint. When you have a high leukocytosis, you may go further and find an attack of pneumonia that had previously escaped your attention.

Of the many complications and sequels mentioned by Dr. Mead, I should select, in the order of their importance, first, circulatory failure; second, tympanites and dilation of the stomach; third, bronchitis supervening upon a pneumonia; and fourth, pleuritis and empyema. I must differ with the statement by Dr. McKenzie that he had never seen a

case recover in which there was irregular heart-action before the crisis. I am sure that I have seen such cases recover.

DR. CHARLES J. FOOTE (New Haven): *Mr. President and Gentlemen:* This paper that we have heard has been very carefully prepared, it seems to me; and the literature of the subject has been very thoroughly studied by Dr. Mead, especially the recent literature. The title of the paper, however, is somewhat misleading; because it really deals with pneumococcic infection, which is quite distinct from pneumonia. The former is quite analogous to tuberculosis or syphilis, and affects nearly all the organs of the body. We can have pneumococcus infection of the meninges, the lungs, the liver, the heart, or the kidneys, for example. As the consequence, we see that pulmonary pneumonia, if we call it that, is simply one manifestation of pneumococcus infection.

So far as the pathology of pneumonia is concerned, there is a great deal that is not at all typical of it. That is, if we confine ourselves simply to the pneumonia caused by the pneumococcus, the disease is fairly typical; but if we take in all kinds of pneumonia, we find that there are a great many kinds and types of the disease. This causes a great deal of difficulty in the diagnosis and we frequently say that pneumococcus pneumonia is not typical, when in reality the atypical kind is caused by some other organism. The vast majority of the cases are quite typical, when they are caused by the pneumococcus. We do not often run across atypical cases of pneumococcus pneumonia; and when we do, we can nearly always explain them. The onset is usually quite typical; but it may not be, because the disease may come on with another infection. For instance, there may be an atypical onset of pneumonia in a case of tuberculosis; or when there is some primary pneumococcus infection in some other part of the body, and the pneumonia is a secondary infection from it. In a case in which there has been a pneumococcic infection of the ear followed by a secondary pneumonia, the onset is not particularly typical of pneumonia. Then, again, in the case of the aged, and of infants, the onset is frequently atypical.

As to the course of the disease, here again the same rules apply. If we have a double infection, such as pneumonia grafted on tuberculosis, or perhaps a typhoid pneumonia, we have an atypical run of the pneumonia; but if we have simple infection with the pneumococcus, the course is fairly typical, it seems to me.

DR. GEORGE BLUMER (New Haven): *Mr. President and Gentlemen of the Society:* I have seen four different kinds of what I should call atypical pneumonia. I mean pneumonia that simulates other diseases. Two of these varieties are apparently common, and the other two are not. In the first place, there is the form simulating meningitis, which is

mostly seen in young children, though occasionally in adults. With this, you are doubtless well acquainted. The second is the form that simulates appendicitis. This is a form that has not been so widely recognized; and not infrequently cases of this kind get into the surgical department of the hospital and are operated on before the pneumonic symptoms are discovered. We have had several such cases within the past few years. There is just one point that I would bring up in connection with these cases that is not generally recognized, and that is that appendiceal phenomena are not always associated with lower-lobe pneumonia. I have seen cases in which the pneumonia was in the apex of the lung, and yet the abdominal symptoms were pronounced. The third type is less common. It is mentioned in Osler's textbook, and I have seen no description of it anywhere else. It is characterized by immense, board-like abdominal distension. Within the past few years, I have seen two such cases. They may be mistaken for pancreatitis; Halsted operated on one such case. Finally, there is another type to which I want to call attention, about which not enough has been written; and that is a type of lobar pneumonia occurring in infants or young children and associated with ear-ache. In acute cases of this form, the diagnosis has usually been otitis media. In one case that I remember, at least, the ear-drum was incised with negative results; and, after six or seven days (these were cases of lobar pneumonia, of course), the crisis occurred, the ear-ache disappearing coincidently with the crisis. That is a form that is not generally mentioned in the literature of the subject; yet I think that these cases, while not so common as the meningelial and the appendiceal forms, are not so very uncommon and should be looked out for.

The State Board of Health.

EDWARD K. ROOT, HARTFORD.

The object of this paper is to call the attention of the members of this Society to the present legal powers of the State Board of Health, to discuss briefly its development from the date of its creation in 1878 to the present time, and to consider what the proper functions of such a Board should be in the light of the many changes already taken place and in progress of development in modern sanitary science.

Some twelve years experience as a member of this Board convinced me that much misapprehension concerning the actual powers of the Board still prevails among our citizens as well as among physicians and members of this ancient Society. Much of this is unavoidable. But a discussion of the whole situation is, I think, desirable, for changes are demanded, and without the sanction and indeed the earnest coöperation of the members of this Society, changes which require the sanction of the legislature before they can become lawful and operative are liable to be ill-judged and ineffective unless carefully considered.

Briefly outlined, the State Board of Health was created to carry on two functions. First, to supervise the vital statistics of the State; the statutes provide that the State Board of Health shall have general supervision of the state system of registration of births, marriages and deaths; shall prepare the necessary methods and forms for obtaining and preserving such records, and shall insure the faithful registration of the same. In the several counties and in the central bureau of vital statistics, the secretary of the State Board of Health is made the superintendent of registration of vital statistics. The importance of a complete system of registration of births, marriages and deaths is too obvious to need argument. The fact that Connecticut is classed by the authorities at Washington in the so-called registration area as an indication that the records are

accurately and faithfully kept is sufficient evidence that this function is carried out to the satisfaction of all concerned.

The second part of the duties for which the State Board of Health was created is far more elastic. The statute recites that the Governor, with the advice and consent of the Senate, shall appoint six persons, three of whom shall be physicians, and one a lawyer, who, together with a secretary to be chosen by themselves, will constitute the State Board of Health. They shall elect annually a member to act as a president, and they shall select a physician to be permanent secretary and executive officer, who shall hold his office so long as he shall faithfully discharge his duties. The Board thus constituted shall take cognizance of the interests of health and life among people of this State; make sanitary investigations, and inquire especially the cause of diseases, and of epidemics; collect such information as may be useful and contribute to the promotion of health and security of life; cause to be made inspections of public hospitals, prisons, asylums, or other public institutions regarding heating, ventilating, etc., and other circumstances in any way affecting the health of their inmates, and shall suggest in writing to the officers thereof such remedies as they may consider fruitful for the removal of all conditions detrimental to health in such institutions. The Board is also required to cause proper information in its possession to be forwarded to the local health authorities of any city, borough, town or county. The Board is empowered to require reports and information at such times of such facts relating to safety of life as its by-laws and rules may require from the officers and public dispensaries, hospitals, asylums, prisons and schools; from the proprietors and managers of places of public resort, but such reports and information shall only be required concerning matters in respect of which said Board may in its opinion need information for the proper discharge of its duties. The Board shall, when requested by public authorities, advise officers of the state, county or local government in regard to sanitary drainage, ventilation and sanitary provisions of any public institution, building, or public place. The statutes require the local health officer of any town, city or

borough to notify the secretary of the State Board of Health of the existence of any case of smallpox, cholera or epidemic of an infectious disease, and failure to thus notify is punishable by a fine of not more than \$25.00. The Board is allowed, "Said Board may from time to time engage suitable persons to render sanitary service; to make or supervise scientific investigation and examinations requiring expert skill, and to prepare plans and reports relative thereto."

They are empowered to inspect any plan, description, drawing or chart of any public structure, works, grounds or erections, and the agents of members of the board are authorized "without fee or hindrance, to enter, examine and survey all such grounds, erections, structures, buildings, etc."

Section 2512 states that in case Asiatic cholera or yellow fever as an epidemic shall prevail, and in consequence it shall be necessary, in the unanimous opinion of the State Board of Health, to expend a greater amount than the sum provided by law to be expended by the Board—in this emergency would apparently limit the two diseases above named, the Board is empowered to spend an additional sum of \$5,000, and to establish a system of inspection to prevent the introduction of cholera or yellow fever on lines of travel, and virtually to establish a quarantine. The Board is authorized to publish rules for the conduct of such inspection and quarantine, and penalties are provided for the willful violation of any of the above rules. The Board is required to make an annual report to the Governor of its operations with an itemized account of its expenditures.

The above briefly outlines the statutory authority of the Board at its inception and up to a few years ago.

Some years later the State Board of Health was empowered to appoint a committee for the purpose of examining candidates desirous of obtaining certificates of registration for the practice of medicine, surgery and midwifery. The act of 1893, as amended in the session of 1907, requires that the State Board of Health shall accept the nomination of the three Medical Societies of the state for appointment on the examining committees of the three Societies respectively, and shall transmit to the town clerk

of the applicant's town his registration certificate; that the function of the State Board of Health is simply to record and transmit the decisions of the various examining committees; although it can, under certain restriction, revoke a certificate already issued, as will be seen is no actual authority to withhold a license at all.

In the session of 1905 the act was passed authorizing the Board to establish a bacteriological laboratory, and the Board was empowered to make, free of expense, upon the application of registered physicians or health officers, examinations of morbid tissues for the diagnosis of infectious diseases. And in 1911 the act concerning the procuring and distribution of antitoxin and vaccine lymphs for the free use of the people of the State was also passed.

Members of the State Board of Health are ex-officio members of the Board of Management of the County Homes for indigent children, and as individual members of these various Boards have the ordinary powers of members of a Board of Directors only.

It will be observed then that the State Board of Health has practically no mandatory powers over any citizen, over his person, or his property unless he is suffering from cholera or yellow fever which prevails at the time epidemically to such a degree as to warrant the Board in exercising extraordinary powers and establishing quarantine. The State Board of Health cannot through its secretary, inspectors or officers, by its own powers remove a case of smallpox from a crowded tenement to an isolated hospital; it cannot order directly the abatement of any unsanitary condition, no matter how obvious, although it can suggest and advise at its discretion such remedies as may be fruitful. What officials, then, have power to act directly in case of need in sanitary questions, epidemics of contagious disease, or obvious violations of the laws of health?

Section 2517 provides that the judges of the Superior Court shall appoint for each county a health officer who shall be an attorney-at-law; he holds his office four years; may be removed by a judge of the Superior Court, and is sworn to perform the

faithful discharge of his duties. He receives \$10.00 a day and necessary expenses when actually employed in the discharge of his duties. He is required annually to make a report to the State Board of Health. The county health officer shall cause the execution of the laws relating to public health and the prevention and abatement of nuisances and of the laws relating to the registration of vital statistics, and shall coöperate with and supervise the doings of town, city and borough health officers and boards of health within his county. He has the power of a grand juror; may bring prosecutions, may sign complaints, etc. He is required by Section 2521 to appoint, in writing, in each town, some discreet person, learned in medical and sanitary science, to be health officer of said town except in towns containing a city or borough whose limits are pro-terminus within the limits of said town. In each town, except the above mentioned, the health officer shall have all powers necessary and proper for preserving public health and preventing the spread of disease.

Each health officer shall hold office for four years; he shall make an annual report of his doings to the town in which he is appointed, duplicates of which reports shall be filed with the county health officer of the State Board of Health. He is to be paid by the treasurer of the town, not less than three dollars per day of actual service, with his necessary expenses, on the approval of the bill by the county health officer, and his successor is appointed by the same official. The powers of the town health officer are most extensive and his responsibility equally great. He can order and establish quarantine, segregate families in their own homes in case of infectious disease, order abatement of nuisance, removal of filth, order buildings repaired, plumbing renovated if he considers such action necessary, and penalties are provided for neglect to carry out his orders; the county health officer is empowered to act as a prosecuting attorney to enforce his decrees, and legally speaking his powers within his own town are practically autocratic. For instance, Section 2527 provides that the health officer may give his orders and regulate the time, the place and the manner by which manure

and other fertilizers may be unloaded from vessels or cars and transported on the highways. Section 2528 gives them jurisdiction over streams for health purposes when contiguous to their town. Every physician is required to report through the health officer every case of contagious disease except those of a venereal nature, also infants having diseased eyes, and they may also, if health officers of a town contiguous to navigable waters, establish a quarantine on incoming ships.

There is a complicated machinery provided by law both for appeal from the orders of the town health officer and for enforcing his orders. But within his territory and within the limitations outlined above and described by sanitary custom he is to all intents and purposes autocratic in his power, responsible only to the county health officer, who is required to be an attorney and not a sanitarian, yet dependent on the county health officer for his three dollars per diem, a small enough sum it would seem for the responsible and arduous duties he is compelled to assume. Rules and regulations made by the town health officer must be submitted to the State Board of Health for approval before becoming valid, but all executive action of the town health officer he alone is responsible for. The law provides, in addition, that the health officer is not liable for any error of judgment when acting in good faith.

It will be seen, then, that so far as the citizen is concerned the town health office is the local sanitary Deity. The law provides that in cities and towns having, by their charter, Boards of Health, they in their turn assume all the power, and in a few instances some especial privileges, the law provides the town health officer; boards are likewise required to report to the State Board of Health annually.

The State Board of Health is the central bureau for receiving the reports of the county and town health officers; it is as the original statutes provided,—a bureau of information, and recent legislation, while enlarging its scope by adding the laboratory, has simply increased its facilities for distributing information concerning contagious disease, as it is obvious that the laboratory itself is, as it was intended to be, merely an aid to the

prompt diagnosis of disease. It has no powers of quarantine or regulation whatsoever. From a sanitary point of view, the State of Connecticut is a confederation of independent towns, each sufficient unto itself and regulating its own sanitary affairs; the only authority the State has is that of approval, of systematizing the local regulations before they can be enforced. Is that sufficient for a modern State that is ambitious to progress on modern lines of sanitary science? There is of course wide differences of opinion as to what constitutes the proper function which the State Board of Health should assume. Even so able an authority as Dr. Stephen J. Maher of New Haven, member of the Board of Directors of County Homes for the care and treatment of persons suffering from tuberculosis, in a most interesting address delivered before the Charities Convention in Hartford, April 17, 1912, says, "it would be better that laboratories attached to the state sanatoria should receive and examine all specimens of sputa for the diagnosis of tuberculosis rather than the laboratory of the State Board of Health, which is generally considered to be the receiving and filing bureau of records of births, deaths and marriages. It has other work to do, but the public has forgotten that."

If tuberculosis were the only infection that the State of Connecticut recognized as requiring segregation and quarantine, Dr. Maher's suggestion would be most opportune, but diphtheria, rabies and glanders still require laboratory technique to establish their existence beyond the possibility of a doubt, and the central laboratory for the prompt examination and report of tests made in these diseases has in my judgment more than proved its usefulness.

That laboratories in connection with the state sanatoria for people with tuberculosis would also prove useful not only to the institutions themselves but to physicians in the immediate neighborhood cannot be doubted, but the law still requires that tuberculosis be reported as an infectious disease, and the most available source of certain proof of the existence of tuberculosis to be made to the State Board of Health is the laboratory examinations as now carried on. But there are other matters of far-

reaching public interest which the State Board of Health should have authority over, and which are briefly outlined before closing.

The State should have power to issue rules in matters concerning the preservation of public health which should be mandatory on the towns, and all towns alike, precisely as the town health officers now have powers to make rules within the jurisdiction of their own town. For example, New Haven has recently issued an order prohibiting the use as an article of food of shell fish taken from certain polluted areas of New Haven harbor, but this applies only to the citizens of the town of New Haven. These oysters can be shipped out of New Haven town and sold freely as food throughout the State, and unless each town in succession passes a similar rule prohibiting the use of these particular oysters a citizen has no protection.

The act concerning individual drinking cups required a state law to enforce it whereas if general powers had been given to the State Board of Health a simple rule would have been sufficient.

Second, the State Board of Health should have general oversight and authority of public water supplies, public systems of sewage and the pollution of streams, rivers and harbors throughout the State.

The Board has now a power to investigate and recommend changes but no authority even to make its recommendations sufficiently comprehensive and exact to make them available for public service. Analysis of public water supplies has been carried on for years by the State Board of Health. Attention has been called in repeated instances to obvious and dangerous pollution of public water supplies without result, for the Board possesses no power to enforce any change or even authority or funds to make sufficiently complete investigation to enable them to offer the necessary changes.

Towns have repeatedly asked for advice concerning the construction of suitable sewage disposal plants to avoid the pollution of streams, but the Board is without means or equipment to make the necessary investigation each individual instance demands, and

without such thorough investigation and in complete possession of all the data necessary, no State Board can suggest a remedy and assume the responsibility for its successful operation.

Not long ago the town of Winsted submitted outlined plans for the disposal of their sewage and requested the opinion of the Board as to their practicability and the probability of the plan being successful. The guarantee of the State Board of Health that that particular plan, or any other submitted, would be successful would have practically amounted to freeing the town of all responsibility from future suits from the pollution of the stream into which their sewage discharged, and legal responsibility which the State Board of Health could not assume with the insufficient data in its possession.

Modern sanitary science can suggest no one infallible remedy for all cases of pollution of water courses. Each town requires careful study of its topography, the source of its water supply, the population, number and variety of manufacturing interests located there, the character and kind of manufacturing waste. Innumerable questions arise requiring the highest order of engineering and sanitary knowledge before proper advice can be given. The preservation of water sheds from pollution, of proper filtration, or other treatment of public water supplies already established or under contemplation, of the disposal of sewage and utilization of sewage already constructed, are all questions which involve not merely the particular town interested, but others in their immediate or remote vicinity out of the State itself, as, for example, the pollution of the Connecticut river by the Massachusetts towns above.

The Massachusetts law provides that all towns or corporations proposing to introduce a public system of water supply, or contemplating public works involving the construction of large sewers, shall submit plans to the State Board of Health for general consideration and approval, and the State Board of Health itself is equipped with an engineering department which will not only make all necessary investigations, prepare plans, give all the necessary advice, but supervise the construction and operation of such plans for their completion.

What the Lawrence experiment station of the State Board of Health of Massachusetts has done for the advancement of sanitary science as regards the purification of water and filtration of sewage is too well known to recapitulate here. New York likewise has provisions for the supervision of all public water supplies and sewers, and the general powers of the Board in Indiana, Illinois, Ohio and some other states are nearly as far-reaching as are the powers of the local health officers in the towns of Connecticut.

In Massachusetts, for example, the act of 1907 divides the State into not more than fifteen districts to be known as Health Districts, over each of which a state inspector of health is appointed under the general supervision of the State Board of Health, while in many states the direct power of the officers of the State Board of Health is to all intents and purposes mandatory on the citizen of any town.

Such far-reaching increase of centralized power is by no means to be desired in Connecticut. Changes to be desired are only where areas involve certain towns, or large portions of the State are interested, and where the authority of one town or even of one county cannot be directly invoked.

Matters of public sanitation and of public health which concern a citizen alone should, as at present, be left with the town health officer. But matters involving the construction of large public works, the collection and distribution of public water supplies, and questions concerning the pollution of streams and harbors can only effectively be made by the State, and the State Board of Health is the logical and proper authority to have charge of these matters.

The Board should be empowered to organize a department of sanitary engineering with powers essentially those given the Massachusetts State Board of Health to whom towns, cities or boroughs requiring advice concerning public water supply, construction of sewers, of the purification of streams by sanitary disposal of sewage and waste, could all appeal for advice and counsel. A board thus organized could make thorough investigation of each case presented, coöperate with the local engineers

employed by the towns, and advise such methods as the case demanded. Advice given under such conditions and with authority to enforce it would then make the Board as it should be, responsible for the advice it gave and, to a degree, at least, responsible for the results attained.

The physicians of the State are necessarily the instructors of the people in matters of hygiene. If the members of this Society can coöperate and urge upon our legislators the desirability and necessity of concerted action on the questions above outlined, legislative sanction will not be far behind.

DISCUSSION.

DR. CHARLES P. BOTSFORD (Hartford): The doctor has told us what the powers and duties of the State Board of Health are, and how little authority they have at present. Most of us know, in a general way, that the Boards of Health of other states have very large powers; and when we think of the amount of work that our Board of Health has done in the past, we realize how well known the members of it have been and how tactful has been their executive work. I think that the time has passed when the towns of Connecticut can settle their sanitary affairs for themselves, without regard to their neighbors. There are many local nuisances the abatement of which are entirely within their power; but such things as the contamination of the water supply and the disposal of sewage are things that require the advice and control of a central authority. With this has passed the efficiency of town health officers, who are simply responsible to the towns employing them. If the State is to keep up with the progress of sanitary advancement, we must have some power to undertake and carry through large sanitary improvements that cover several towns. Even the duties that the Board of Health have at present, such as the collection of vital statistics, cannot be done as they should be, because its members have not sufficient power. They can simply record the statistics sent to them by the Registrars of the towns; as they have no authority to investigate the accuracy or completeness of these records. This work is done by the County Health Officer independently of the State Board. The logical thing for us to do is to give the State Board of Health authority commensurate with its name.

THE PRESIDENT: I am informed that Dr. John W. Wright of Bridgeport, who was to have continued the discussion on Dr. Root's paper, is sick in bed. We have present with us, however, a gentlemen who has

been attending the sessions of the Oyster Growers, and is a former member of the New York Board of Health's Laboratory, Dr. H. D. Pease; and I will call upon him for some remarks on the subject.

DR. H. D. PEASE (New York): *Mr. President and Members of the Connecticut State Medical Society:* It is entirely accidental that I am here to-day, having been, as your President has said, at the meeting of the National Oyster Growers and Dealers Association. I was very much interested in the paper of Dr. Root concerning the organization and powers of the Connecticut Board of Health, as it was my pleasure and good fortune to be connected in a scientific and more or less administrative capacity with the Board of Health of New York State for about ten years. We have passed through very much the same stages in the State of New York as you are now passing through in Connecticut. Many special efforts were made, some of which were successful, while I was a member of the Board, to obtain the powers outlined in this paper as desirable for your State Board. When the difficulties that have been mentioned in connection with sewage-disposal, water-supply, etc., arise, the practical man who is burdened with the responsibility of bringing about changes at once seeks the power of supervising these situations and prescribing the remedy; and I may say that the entire session of the Oyster Growers Association was devoted to this question of the pollution of streams. Indeed, you might have thought that it was a session of the State Sanitary Officers of New York, such as we used to hold. Practically everyone wanted to refer the matter to the United States Government, because they said that there might be some power possessed by the Government that could correct this whole difficulty; and it was necessary for someone to set them straight on this point. As that question had been brought up and threshed out time and time again at our meetings, I was obliged to lay stress on the fact that there is no power given to the Federal Government by our Constitution that permits it, directly or indirectly, to step in and have anything to do with health matters in the several states. This brings the question back to the State itself and the individual localities in it. If the oyster industry of Connecticut, which is probably greater than that of any other state in this country, although I have not the exact figures at hand, is to be protected, the State Board of Health should have the power to deal with the question of the pollution of tidal waters and streams. This is one of the greatest questions that we have before the public to-day. The powers that have been so carefully and discreetly outlined by Dr. Root should be given to the State Board; and I am sure that the medical profession in this State would be amply supported and assisted by all of those who, directly or indirectly, are interested in the shell-fisheries of this State, in trying to get this proposed legislation.

DR. WILLIAM H. DONALDSON (Fairfield): I am very sorry to take up the time that I hoped would have been taken by some other members of this Society to whom I have talked about this matter during the last two days. Dr. Root's paper has brought before us a topic that has been a foul sore in the minds of the medical profession in the State of Connecticut for years. I do not wish to stir up discord, for it would be the first in our Society during this meeting; but I wish to say that the inadequate system of the State, which allows to continue from year to year the present State Board of Health, is a disgrace to the medical profession, as well as to the State of Connecticut. I say this without any reference to the present members of the Board; but I think that it is a disgrace to the medical profession that we should go on under the present administration of sanitary matters. The medical profession of Connecticut has been for years under the thumb of the legal profession; and anything which we seek to do for advancement or improvement, we can do only by the consent of the legal profession.

Reference has been made to the Health Officers law. It was a splendid step in advance for the State, but it was only one step; and we have not been able to take a second, because it is so heavy and cumbersome, and because the State Health Officers cannot do anything unless the legal profession say that it is proper and right and that they can go ahead. Otherwise, we must keep still. The whole sanitary administration of the State is controlled by the legal profession, called the County Health Officers. Now no one has greater respect and admiration for certain County Health Officers than I have, but I realize the incompetency of others among them. During the recent Sanitary Conference of the State Board of Health of Connecticut, the matter came up. Dr. Root was on the program to read a paper; and this called out a full attendance of County Health Officers, who came to combat what they thought would come up in the discussion of the paper. But it did not come up. They are a unit in controlling the sanitary matters of the State, and it is time for the medical profession of Connecticut to take a decided stand and do something. At a session of the House of Delegates yesterday, a resolution containing an endorsement of the Owen Bill was passed; and I hope that the members of the Society will use their influence to insure its passage. Once it is carried through, we shall have the national power, which can then direct us in the constitution of our State Boards. I hope that then Connecticut may have a State Board of Health that will control all matters of sanitary legislation and matters of importance in regard to sanitary laws. I wish that I could say what I have in mind; but I know that there are one or two members here who can better voice what I have to say; and I, therefore, will take my seat, hoping that they will follow me.

PAPERS READ AT COUNTY
MEETINGS.

Papers Read at County Meetings.

HARTFORD COUNTY.

October 24, 1911.

PAPERS :

Hæmoptysis—Its Symptomatic Value. Dr. Wm. B. Bartlett.

Discussion opened by Dr. Frederick S. Crossfield, Dr. Henry F. Stoll.

The Application of Anaphylaxis to Legal Medicine. Dr. Arthur J. Wolff.

Discussion opened by Dr. Henry C. Russ.

Goutre—Its Surgical Treatment. Dr. John B. Boucher.

Discussion opened by Dr. Chas. E. Taft, Dr. J. P. Ryan.

Clinical Tests of Kidney Function. Dr. Thomas N. Hepburn.

Discussion opened by Dr. Oliver C. Smith.

X-Ray Diagnosis as Applied to Diseases of the Thorax and Abdomen (Lantern Slide Demonstration). Dr. Arthur C. Heublein.

ADDRESS :

Unmanifested and Manifested Life of Tissues Outside of the Organism and Their Applications in Medicine. Dr. Alexis Carrel of the Rockefeller Institute for Medical Research.

April 2, 1912.

PRESIDENT'S ADDRESS. Dr. Harmon G. Howe.

PAPERS :

Gas Bacillus Infections—Report of a Case. Dr. Ernest A. Wells.

Empyema—Its Significance and Treatment. Dr. Frederick B. Willard.

Discussion by Dr. C. A. Goodrich, Dr. A. M. Rowley.

The Medical Supervision of School Children in South Manchester. Dr. T. G. Sloan.

Discussion by Dr. H. F. Stoll, Dr. C. P. Botsford.

The Treatment of Procidentia of the Uterus. Dr. Charles E. Taft.

Discussion by Dr. T. Weston Chester, Dr. James J. Boucher.

NEW HAVEN COUNTY.

October 26, 1911.

PRESIDENT'S ADDRESS :

The Physician and the Public. Dr. Nelson A. Pomeroy.

LITERARY EXERCISES :

Diseases of the Rectum. Dr. D. C. Bangs.

Discussion opened by Dr. L. W. Bacon, Dr. T. J. Kilmartin.

Infections of the Gall Bladder. Dr. C. H. Brown.

Discussion opened by Dr. E. W. Smith, Dr. J. M. Flint.

Clinical Manifestations of the Bone Metastases Secondary to Malignant Neoplasms. Dr. George Blumer.

Discussion opened by Dr. E. Herman Arnold, Dr. James L. Moriarty.

Diverticulitis of the Large Intestine. Dr. John F. Erdmann of New York.

Discussion opened by Dr. W. F. Verdi.

VOLUNTARY PAPERS.

April 25, 1912.

LITERARY PROGRAMME:

Difficulties in Diagnosis between Intracranial Tumors and Syphilitic Meningitis. Dr. Max Mailhouse.

Discussion opened by Dr. W. F. Verdi, Dr. R. E. Peck.

Medical Expert Testimony. Dr. H. G. Anderson.

Discussion opened by Hon. L. F. Burpee, Judge of the Superior Court; Dr. A. A. Crane.

Connecticut, A Doctor of Consumptives. Dr. S. J. Maher.

Discussion opened by Dr. George Blumer, Dr. E. T. Bradstreet.

Methods of Administration and Dosage of Immune Sera. Dr. W. H. Park of New York City.

Discussion opened by Dr. T. J. Kilmartin, Dr. C. J. Bartlett.

VOLUNTARY PAPERS.

NEW LONDON COUNTY.

October 5, 1911.

PRESIDENT'S ADDRESS. Dr. P. J. Cassidy.

READING OF SEMI-ANNUAL DISSERTATIONS:

Regularities and Irregularities among Physicians. Dr. C. E. Brayton.

Discussion opened by Dr. E. P. Brewer.

Abortion. Dr. P. J. Cassidy.

Discussion opened by Dr. C. B. Graves, Dr. W. K. Tingley.

ADDRESS. Dr. J. G. Stanton, President of the State Medical Society.

VOLUNTEER PAPERS.

April 4, 1912.

ADDRESS. Dr. E. C. Chipman, President.

ADDRESS. Dr. J. G. Stanton, President of the State Medical Society.

READING OF ANNUAL DISSERTATIONS:

Diet during Infancy and Early Childhood. Dr. E. J. Brophy.

Discussion opened by Dr. C. F. Ferrin.

Neuritis. Dr. Geo. Thompson.

Discussion opened by Dr. R. W. Kimball.

VOLUNTEER PAPERS.

FAIRFIELD COUNTY.

October 10, 1911.

VICE PRESIDENT'S PAPER:

Syphilitic Skin Lesions Frequently Overlooked. Dr. James D. Gold, Bridgeport.

READING OF PAPERS:

Cardiospasms—Its General Consideration. Dr. John F. Erdmann, New York City.

Discussion opened by Dr. D. C. Brown, Danbury.

The Therapeutic Value of Salvarsan. Dr. J. Waite Avery, Stamford.

Defective Coördination of the Motor-Oculi Muscles and Treatment.

Dr. James A. Meek, South Norwalk.

Practical Experience with Hydriatic Treatment. Mr. Louis Wagner, Bridgeport.

April 9, 1912.

PRESIDENT'S ADDRESS:

The Ethical Standing of the Irregular Practitioner.

READING OF PAPERS:

Pathogenic Micro-Organisms, their Source and Transmission Relative to Disease. Dr. Ralph W. Crane, Stamford.

Discussion opened by Dr. Griswold, Dr. Tracey and Dr. English.

Epidemic Meningitis—Its Treatment and Prophylaxis. Dr. Abraham Sophian, New York City.

Discussion opened by Dr. A. W. Klein.

Spontaneous Fracture in Carcinoma of the Bones. Dr. George W. Hawley, Bridgeport.

Discussion opened by Dr. Downs.

WINDHAM COUNTY.

October 19, 1911.

ADDRESS. Dr. John G. Stanton, New London, President of Connecticut State Medical Society.

PAPERS:

The Public Milk Supply of Connecticut. Dr. J. H. Townsend, Secretary Connecticut State Board of Health.

Obituary of Dr. A. E. Darling. Dr. W. H. Judson, Danielson.

Typhoid Fever—Its Treatment. Dr. C. C. Gildersleeve, East Woodstock.

Exophthalmic Goitre. Dr. L. I. Mason, Willimantic.

Serums and Vaccines—Prophylactic and Curative. Dr. Egbert and Dr. O'Neill, Willimantic.

DISCUSSIONS.

April 18, 1912.

PAPERS :

Accidental Wounds and their Treatment. Dr. S. B. Overlock, Pomfret.
Obstetric Asepsis. Dr. R. C. Paine, Thompson.

Prophylaxis in Diseases of Babyhood. Dr. E. F. Perry, Putnam.

Best Methods of Artificial Feeding in Infants.

Discussion by Dr. F. E. Guild, Dr. Burroughs, Dr. Judson, Dr. Parker, Dr. Hills and others.

Proposed for membership, Dr. Frank A. Camalier, Willimantic,
Georgetown University, 1908.

Discussion in order following each paper.

SEMI-ANNUAL MEETING OF THE CONNECTICUT STATE MEDICAL SOCIETY
WITH THE LITCHFIELD COUNTY MEDICAL ASSOCIATION.

October 3, 1911.

PAPERS :

Some Practical Observations upon Abdominal Surgery with Special
Reference to the Upper Abdomen. Dr. Wm. L. Tracy, Pittsfield,
Mass.

Laboratory Aids to Diagnosis Offered by the State Laboratory to the
General Practitioner. Dr. Joseph H. Townsend, Secretary State
Board of Health.

The Present Status of Salvarsan in the Treatment of Syphilis. Dr.
John Carter Rowley, Hartford.

Discussion opened by Dr. Ralph A. McDonnell, New Haven.

Clinical Manifestations of Obliterative Disease of the Peripheral
Vessels. Dr. George Blumer, New Haven.

ADDRESS BY VICE PRESIDENT :

Common Mistakes in Milk Modification for Infant Feeding. Dr. Ralph
S. Goodwin, Thomaston.

April 23, 1912.

PAPERS :

Medical Literature for the Great Public. Dr. J. C. Kendall, Norfolk.

Differential Diagnosis of Syphilis and para Syphilis of the Nervous
System. Dr. Edward D. Fisher, Professor Neurology, University
and Bellevue Medical College.

Common Mistakes in Obstetrical Operating. Dr. George P. Shears,
Professor of Obstetrics, New York Polyclinic.

What is a Public Lavatory? Dr. J. C. Kendall, Norfolk.

Proposals for membership, Dr. Leonard J. Loewe, Falls Village,
Tufts College of Medicine.

MIDDLESEX COUNTY.

October 12, 1911.

DISCUSSION OF QUESTION FOR 1911:

Serum Therapy.

PAPERS:

Typhoid Vaccine in Prophylaxis. Dr. L. R. Brown.

Anaphylaxis. Dr. H. Gildersleeve Jarvis.

Some Personal Experiences with Salvarsan. Dr. R. A. McDonnell,
New Haven.*April 11, 1912.*

PAPERS:

Remarks on Psycho Analysis. Dr. F. K. Hallock.

Differential Diagnosis between Variola and Conditions Simulating It.
Dr. J. F. Calef.

Medical Inspection of Schools. Dr. K. C. Mead.

Family Pernicious Anemia. Dr. C. J. Bartlett.

CLINICAL REPORTS:

Dr. J. H. Mountain, Dr. J. T. Mitchell, Dr. James Murphy.

TOLLAND COUNTY.

October 17, 1911.

PAPERS AND DISCUSSIONS:

Diet. Dr. James Stretch.

Discussion by Dr. William L. Higgins and Dr. Thomas F. Rockwell.

The Diagnosis of Mental Diseases. Dr. Louis R. Brown, Assistant
Physician Connecticut Hospital for the Insane, Middletown, Conn.

A Few Practical Points in Anesthesia. Dr. Willard N. Simmons.

Discussion by Dr. Edwin T. Davis and Dr. John P. Hanley.

VOLUNTARY PAPERS.

April 16, 1912.

PAPERS AND DISCUSSIONS:

Dental Pathology and Therapeutics. Dr. Martin V. B. Metcalf.

Some Diseases of Childhood. Dr. Wright B. Bean.

Discussion opened by Dr. Eli P. Flint and Dr. John P. Hanley.

Some Sanitary Problems. Dr. Charles P. Botsford, Superintendent of
the Hartford City Board of Health.Signs and Symptoms to be Observed in the Administration of Anes-
thetics. Dr. Willard N. Simmons.Discussion opened by Dr. Cyrus B. Newton and Dr. William L.
Higgins.

VOLUNTARY PAPERS.

OBITUARIES.

Frederick B. Baker, M.D., East Norwalk.

FRANKLYN G. BROWN, M.D., EAST NORWALK.

Dr. Baker was born at East Windsor, Conn., May the 9th, 1855. He graduated at the University of Maryland in March, 1888, and in June of the same year selected East Norwalk for his future field of professional labor, where for twenty-three years he conducted successfully an honorable practice, laying down his work quietly and peacefully on April 17th of the present year.

He was a hard worker, caring not for prolonged vacations and seldom leaving his practice even for a day, and while his close attention to his patients probably helped to shorten his days among them, we who are left behind to take up the work where he laid it down cannot but feel that he was repaid by the respect and affection they bore him.

Not only was the Doctor honored by his professional brethren but also by his fellow townsmen he was held in esteem, being frequently chosen as moderator of their various meetings and also holding positions of trust.

He was a director of the South Norwalk Savings Bank, a member of the South Norwalk Club, and many other societies.

By his death, East Norwalk has lost a good citizen, his patients a comforter, and myself a friend.

George Hoxie Beebe, M.D., Guilford.

REDFIELD B. WEST, M.D., GUILFORD.

George Hoxie Beebe, M.D., died at his residence on Park Street in Guilford on Tuesday, January 9, 1912, after an illness which confined him to his bed for about two weeks. He was fifty-six years and eleven months old. He was born in Westerly, R. I., being a son of Rev. Daniel Forbes Beebe and Sarah E. Witter Beebe. In Westerly he married Mary Emma Lewis, daughter of George Henry Lewis and Mercy A. Lewis..

Dr. Beebe is survived by his wife, one son, Lewis Beebe, and two daughters, Miss Grace Beebe and Mrs. Henry Rowland. He received the degree of Doctor of Medicine in 1878 at the New York University. His earlier years of the practice of medicine were in Pontiac, Illinois. From there he came to Guilford in 1886. He soon gained the confidence and respect of the people of Guilford. He was a gentleman of true Christian character and an interested worker for the upbuilding of the Third Congregational Church, of which he was a member and trustee.

Professionally he was classed as a man of ability and success in the practice of medicine, receiving the unbounded confidence of his large patronage.

He was a Mason and a member of Halleck Chapter, R. A. M., of Guilford.

Rollin Blackman Chatfield, M.D., Granby.

GEORGE N. BELL, M.D., HARTFORD.

Dr. Rollin Blackman Chatfield was born in Bethany, Conn., February 9, 1870, the son of Henry W. and Abbie Chatfield; the family moving to Woodbridge shortly, he received his early education in that town, and later graduated from the Seymour High School. He taught school for about a year in Seymour, and here met Mabel Holbrook, who later became his wife, and genuine and most efficient helpmate.

He entered the Yale Medical School in the fall of 1889, and soon, by his quiet but persistent efforts, made his presence felt as a hard and painstaking student. In December, 1890, he, with three other students, was invited to witness a tracheotomy upon a child with diphtheria, and after the operation, remained in the house and cared for the child until its death.

Dr. Chatfield contracted diphtheria from this case, and after a long and severe illness was left with a paralysis and nephritis, so that he lay helpless for months. A part of this time was spent in the New Haven Hospital as a patient, and although compelled to live in a wheel chair, he put in the enforced confinement to good advantage, wheeling himself about the wards and picking up much knowledge that served him well in later years. By reason of this long illness he lost his place in his Class, but never in the regard and love of his classmates; he returned to college the following year, graduating with the Class of 1893. After a short vacation practice in Southbury, he removed to Granby, Conn., in which town he lived and practiced until his death, October 23, 1911, from chronic nephritis contracted as the result of his unfortunate experience during his student life. It is remarkable that he did not die during his paralysis, and at no time during the following eighteen years could he live as did other men of his age, for his days were

full of distress from short breath, palpitations and dyspepsia, yet, with it all, he made no complaint, and was eager for work, and tried at all times to do the best work possible. He grew, as all country physicians must, self-reliant—always at his post, anxious for the most serious work of his profession.

Dr. Chatfield was truly the beloved physician of the community in which he lived; and the memory of the many acts of kindness and efficiency will remain long in the hearts of the people among whom he worked, and of those members of his profession who were fortunate enough to know him well.

A. E. Darling, M.D., Killingly.

W. H. JUDSON, M.D., DANIELSON.

Dr. A. E. Darling was born in Killingly, December 4, 1844, and was the son of one of our Killingly farmers, and grandson of a Revolutionary soldier. He spent his youth on his father's farm and in the factories at East Killingly. He obtained his education in our district schools and academy. As he approached maturity he had a longing to become a physician, and bent his energies in accumulating a fund to take a medical course, by teaching school and laborious work, studying medicine at first under Dr. Justin Hammond, father of our late lamented Dr. Henry Hammond, and also assisting Dr. Charles Fisher at North Scituate, R. I., in his practice. Later he entered Harvard Medical School, took a full course, and graduated with honor. Immediately afterward he commenced practice in his own town, Killingly. The following year he married Charlotte Adelaide Stokes, who now survives him. To them three children were born, of which one remains alive, Harriet P., wife of Roy H. Spaulding of Ashland, N. H. Besides these he has a brother, Dr. C. H. Darling, of Worcester, Mass.

Dr. Darling was a man of indomitable grit and perseverance. He never knew what it was to say fail or be tired in the sense of refusing to do just a little more. By such untiring effort and devotion he built up a very large practice, extending over a circuit of twenty miles in diameter. He was a good diagnostician and a fine surgeon of the old school, seldom making a mistake, and was as near up to date as a man could be who had to make the best of his environment. He was, allow me to say without prejudice, probably the best bone-setter among us who touched elbows in the profession. He held many public offices, one was of the school committee for thirty-one years, and financed the Dayville Congregational Church for a long period.

He was an F. & A. M. and a member of the Windham County and Connecticut Medical Societies.

As a man he was just and honest, willing to attend patients at any time, working overtime in his profession, which was one of the primary causes of his premature death, for he had a constitution which would have helped him to have lived to be a hundred, could he have conserved his energies.

Because of his ceaseless energy and tactful business dealings he had accumulated more than an ordinary competence for a physician in this part of the country.

Although never flaunting the fact by making verbal statements, he was enabled to state the fact that he died a follower of Christ, his Saviour, and his very devoted life to his fellowmen proved this to be true. May we all be able to have as much said of us after we have gone from our duties here below.

Thacher S. Hanchett, M.D., Torrington.

WALTER L. BARBER, M.D., WATERBURY.

Thacher S. Hanchett, M.D., was born in Canaan, Conn., November 8, 1838, the son of Ephraim and Nancy Swift Hanchett.

Dr. Hanchett was a descendant on his mother's side of Edward Winslow, who came over on the *Mayflower* and was one of the early governors of the Plymouth Colony, and also of Rev. Dr. Thomas Thacher (whose name he bears), the first pastor of the Old South Church, Boston, a man who, shut out from Oxford as a nonconformist, was accounted the first Hebrew and Arabic scholar in this country. His ancestors on his father's side were active in discovering and developing the Salisbury iron ore deposits and the famous industry from which Washington obtained the iron for his cannon.

Ephraim Hanchett, the doctor's father, a manufacturer himself, was an earnest Christian man interested in the abolition of slavery and the temperance reform, being one of the first vice presidents of Lyman Beecher's Pioneer Temperance Society in Connecticut.

The family moved to Massachusetts in his boyhood, where he received his early education at the academy in Douglass and soon after began the study of medicine in the office of Dr. Darlington. Later he entered the Harvard Medical School, taking his final course and graduating from the Bellevue Hospital Medical College in the spring of 1864.

After practicing a year with Dr. William Welch, in Norfolk, he settled in Torrington, Conn. During his long practice there, Dr. Hanchett became identified with much that pertains to the growth and prosperity of that town.

In June, 1868, he married Emma Hayes of Stonington, Conn., who with one son, Dr. Harry B. Hanchett of Torrington, survives him.

Dr. Hanchett was a member of the Center Congregational Church and one of the prime movers in the establishment of the Torrington Y. M. C. A. He was a member of his County and State Medical Society, of the consulting staff of the Waterbury Hospital, of the Litchfield County University Club, and of many fraternal societies. In politics he was a Republican, but never strongly partisan.

Dr. Hanchett was the first Health Officer appointed under the old law and he held the position of Medical Examiner from the time the office was created until he was obliged by failing health to retire.

Dr. Hanchett loved his profession, his home, his town, and was intensely loyal to his friends. Vacations and travel had little or no attraction for him, but he admired good horses and his greatest enjoyment was with them circling the surrounding country, the reins always in his own hands.

Dr. Hanchett was devoted to his life work, and in his early career sacrificed ease, pleasure, and much of social life for the welfare of his patients. To succeed was his ambition, and all his efforts were made toward this single purpose. That he accomplished his desire was evidenced by the large and influential patronage that filled his office. Of an investigative mind, he was never inclined to mere routine but had his fads and fancies to a greater extent than most physicians. In surgery, which he loved, he was always rather original, spending much time on little things—great factors toward successful results. Enthusiastic in his profession, ceaseless in his toils, with a nervous temperament keenly sensitive, positive in his opinions to a degree, and boundless in push and energy, he begot in his early years of practice some enmities and jealousies, but those who knew him best in later years admired him for these very traits.

While Dr. Hanchett was a skillful and successful practitioner, he did not shine in medical associations, open debates or any public discussion. Of a retiring nature, he much preferred to listen than to be heard. For over forty-five years Dr. Hanchett had an extended practice not only covering his own town but

extending well into adjoining ones, and it was with great reluctance that he gave up his work when age and mental instability compelled him to do so.

Dr. Hanchett died at Norwich, Conn., December 31, 1911, in his seventy-fourth year of age.

Patrick Henry Harriman, M.D., Norwich.

WITTER K. TINGLEY, M.D., NORWICH.

While I have been asked to write an obituary of our friend and brother physician, Dr. P. H. Harriman, I cannot help feeling that it is impossible for me to say more than has been said, and even then there was much more to say. The reason for this is the fact that Dr. Harriman occupied such a peculiar position in the hearts of the medical profession to which he belonged, and was adored by the people—sick and well alike—among whom he moved, and the numerous societies and organizations that were decidedly alive to his presence among them. While I do not feel that I can do him more honor than he has received I certainly will add my mite to what has gone before.

Patrick Henry Harriman was born in Calais, Washington County, Me., where he spent his very early life; later he removed to Winchendon, Mass., where he received his early education. He remained in Winchendon until he had fitted himself to enter Holy Cross in Worcester, graduating from there in 1881. While he was a student there, he strengthened a desire that he had had from a boy to become a Doctor of Medicine; and after graduation, entered Dartmouth to begin his medical education, finishing the same at the University of New York.

Soon after receiving his medical degree, he came to Norwich, and while he may not have intended at that time to make it his permanent place of abode, he did do so mainly through the influence and kindness of Dr. Patrick Cassidy, who saw the young physician and recognized his merits. This reception was followed by the bestowal of medical courtesies from other physicians of Norwich in a most unprecedented manner.

This was brought about by his unfailing courtesy and great natural affability, with which nature had endowed him in a most unusual degree. This nature was a peculiar blend of humor,

pathos and humanity. It was this wonderful make-up that enabled him to get such a hold on the hearts of the people, and to sway them with his sincerity and frankness. Such an influence on the members of the medical profession of Norwich was naturally of great assistance to the young man in building up a practice.

Dr. Harriman was much interested in all the varieties of lodge work and belonged to a large number of societies. He was a charter member and first physician of the Order of Foresters of America, which position he held to the time of his death. Politics claimed his attention early in his career in Norwich. He was a Democrat once and always. He was a Democrat at home and abroad, in national, state and city politics. He was at one time alderman, a member of the Court of Common Council, and for many years a member of the Water Board of the City—at one time its president, also Park Commissioner. He went into all these things with his zeal and was always interested in everything that went on, never missing a meeting if he could help it and always ready to give his advice and counsel when it was needed.

Dr. Harriman was twice married and is survived by his second wife and one child, a boy of whom he was very fond and proud. His home life was very happy and he loved nothing more than to make his fireside attractive to his own family and to his friends. He was the soul of hospitality, delighting in doing what he could to make others happy, in the enjoyment of what to him was a great pleasure. To entertain, to talk and enter into the liveliest repartee was the height of bliss to him.

Dr. Harriman was appointed visiting physician to the Wm. W. Backus Hospital on the original staff; this position he held until his death. Here he showed the same lively interest that he displayed in everything with which he was connected, and was loved and looked up to by every one within the institution. He is a great loss to the hospital and especially to the department of obstetrics, where his teachings and demonstrations were of great value to the training school for nurses. Even during his last time of "on duty" while he was in constant pain and dis-

comfort, he was always cheerful, always helpful and ever thoughtful for the comfort of others. This unselfishness and consideration for the welfare of others was shown in his daily life everywhere, and even in the short time that he spent in the New York hospital, a patient himself, it was so evident that one of his nurses said, "We all loved him, he was so considerate." What better tribute?

As a man, Dr. Harriman was simply about as near perfect as it was possible for a man to be; that is, he was a manly man; he was frank and honest, brave and true. Although he endured his full share of trials, anxieties and responsibilities, he was always a cheerful companion, and made one feel that life was worth living, always regarding himself so little and others so much that he was always optimistic to a degree. He went away to go through a most serious operation with a brave heart filled with expectation of an early return restored to health; I am confident there was no thought at that time that the result would be fatal.

As a doctor and brother physician, we all know what he was; first, always a gentleman, always careful not to give offense, never disagreeable in the egotism so often found in our profession. No one could be more courteous in his dealings with his brother physicians or more punctilious in his obedience to the regulations of medical ethics. In his relations to his patients he was, perhaps, shown in his best light, never anything but polite and gentle, even among patients of a low walk in life, always careful not to lower his profession to the level of a trade in trying to see what amount he could make out of a certain sickness; giving his services willingly and pleasantly when there was no recompense but thanks, and often—very often not even that.

Dr. Harriman made obstetrics a special feature in his practice, and he was very successful in that department of our profession, and had he lived I feel sure that he would have ultimately confined himself to that alone. Perhaps the loss of sleep and irregular hours for meals and general wear and tear of trying to conduct a large amount of obstetrical work in connection

with a general practice had something to do with his early breakdown.

We all miss him and we will miss him more and more as time goes by. No medical meeting was complete without him; no annual banquet will be again what it was with him—with his fine gift of speech and his brilliant wit.

I could go on for an indefinite time relating things about our departed brother, but I will close by repeating a few lines of a verse that was read at the time of his death:

“Green be the turf above thee,
Friend of my better days;
None knew thee but to love thee,
None named thee but to praise.”

Joseph Linn Hetzel, M.D., Southport.

Joseph Linn Hetzel was born in Branchville, N. J., July 22, 1862, son of J. S. Hetzel and Jane Hunt Hetzel. His mother came from the old families of Hunt and Philipse, who were among our earliest settlers. His mother's fortune was lost while he was still a boy, but he had set his heart upon entering the medical profession, and having great perseverance and untiring energy, he taught school until he had earned enough for his tuition, at the same time studying and preparing himself for Bellevue Hospital Medical College, from which institution he graduated in 1891. About the time of his graduation his mother's health became very poor, so he returned to his home town, Stillwater, N. J., where he started upon his professional career. and cared for her until her death. Upon leaving Stillwater he went to Saginaw, Mich., where he filled the chair of Physiology in the Saginaw Valley Medical College. Preferring life in the East, he returned to New York, where he took a post-graduate course in obstetrics while awaiting to decide where to locate. In April, 1897, he settled in Southport, Conn., where he practiced his profession with zeal until the time of his death.

He was a skillful physician and surgeon, very accurate in diagnosis, and successful in treatment. He was a man of great sincerity and uprightness of character, carrying a sense of encouragement and strength to all who came in contact with him. He gave himself freely and untiringly to his patients, and in return possessed their absolute confidence and devotion. He was a member of the Fairfield County Medical Society, the Connecticut State Medical Association, a trustee in both the Trust Company and Savings Bank of Southport, and a member of Pequonock Lodge, I. O. O. F. He was always deeply interested in all that pertained to the welfare of his town. He was an ardent sportsman, and lover of out-door life.

In October, 1900, he married Mary, daughter of the late Edward Livingston Wells, D.D., and Mary Hughes Wells of Southport. Of this happy union four sons were born, Joseph Linn, Paul Hunt, John Edward and Roderick Wells, all of whom survive him.

During the past winter Dr. Hetzel was stricken with pneumonia and died after a few days' illness.

Seth Hill, M.D., Stepney.

EDWARDS M. SMITH, M.D., BRIDGEPORT.

Knowing well the sincere modesty of the man, and his honest dislike of any ostentation, it will be the endeavor of the writer to record merely a few of the main facts in the life of one of our oldest and best known members.

Seth Hill was born July 16, 1837, in the town of Easton, Conn., the son of Wakeman and Eunice Lyon Hill. His early education was obtained in the district schools of the town, and at the Staples Academy, of which latter institution he later became a trustee and served on its board for many years. For the next few years his studies were interrupted by excessive headaches, and during this time he taught school and worked at farming. Then, after a course of further study in a school at Canandaigua, N. Y., he resumed his postponed study of medicine in the office of the Drs. Nash of Bridgeport. He entered the Yale Medical School in 1864 and was graduated in the Class of 1866, being its valedictorian. After graduation he returned to Bridgeport, but upon the advice of his former preceptors decided that the field for practice in Bridgeport was thoroughly covered, and settled in Bethlehem, Conn., where he remained and practiced about three years. Then, listening to the strong and repeated appeals of his friends and former neighbors in Trumbull and vicinity, he returned to his old home, where he continued in active practice until incapacitated by his final illness.

Dr. Hill was twice married, his first wife being Miss Phœbe Dayton of Canandaigua, N. Y., whom he married in 1869, and who died less than one year later. In 1872 he married Miss Mary Frances Nichols of Trumbull, Conn., who survives him, and by whom he had one son, who died at birth. Eight or ten years before his death Dr. Hill suffered a severe attack of "La Grippe," which left him with a weakened heart and obliged

him to curtail somewhat his usual amount of work. Later a malignant growth developed in his stomach, but he continued in the harness until increasing weakness compelled him to stop work. He was brought to the Bridgeport Hospital three weeks before his death, which occurred there on February 5, 1912. In accordance with his strong and frequently expressed wish and desire to avoid all ostentation the funeral was strictly private, and he was quietly buried in the Easton Cemetery.

Dr. Hill served one term in the State Legislature as a representative from the town of Trumbull, and while there worked untiringly in the interest of a medical practice act. He was also deeply interested in the organization of the Bridgeport General Hospital, and made the opening speech at its dedication.

He was a member of the Bridgeport Medical Association, one of the oldest and staunchest members of the Fairfield County Medical Association, and served a term as its president; was also a member and former president of the Connecticut Medical Society, and a member of the American Medical Association.

Dr. Hill was a man of strong personality and distinct individuality—a man large of mind and heart and body—a man who thought out things and did them, and many are the stories that are told and remembered by his friends and associates of his originality and kindliness.

In his more than forty years of active country practice he did an appalling amount of physical work and covered an immense amount of territory—always ready to respond to the call of those who needed his services and always ready to assist any of his medical neighbors with the good counsel born of large experience and learning. Scarcely a house within a radius of many miles from his home but that furnished some bit of medical history in which Dr. Hill was intimately concerned. In his death there has been removed one more of that class of practitioners who were the friend as well as the doctor of their patients.

Edward Alfred Hotchkiss, M.D., Hartford.

OLIVER C. SMITH, M.D., HARTFORD.

Edward Alfred Hotchkiss, M.D., was born of American parentage in the town of Collinsville, Conn., October 31, 1882, and died at the Hartford Hospital, July 21, 1911, of typhoid fever. His early education was obtained at the district and high schools of Collinsville, after which he entered the medical department of McGill University at Montreal, taking the four years course, and graduating in the Class of 1904. Following his graduation, Dr. Hotchkiss returned to Collinsville and entered into practice, becoming a member of this Society in 1906. Although of youthful appearance, his former friends and neighbors sought his advice and placed the utmost confidence in his judgment. Dr. Hotchkiss formed a medical society of his colleagues practicing at Collinsville, and did much to bring about harmony, good fellowship, and professional intercourse. Later, when he decided to serve as interne at the Hartford Hospital, the members of the society made him a substantial gift as a token of their appreciation and affection, a gift which Dr. Hotchkiss treasured most highly.

After two years of practice, Dr. Hotchkiss felt the need of hospital training, and it is greatly to his credit that he relinquished his work at Collinsville and entered the Hartford Hospital as interne, January 1, 1907. The services he rendered the Hartford Hospital were of a high order, and were greatly appreciated. During this term of service Dr. Hotchkiss endeared himself to one and all connected with the institution, and it was at this period that many of us in this Society came to respect, admire and love him. It was welcome news that he had decided to take up his work here in Hartford, for we who knew him realized that the medical profession would be better for his influence, and that those whom he served would find in him a wise and safe physician and a true and helpful friend.

Dr. Hotchkiss combined the qualities of keen discernment, born of innate ability and fostered by conscientious study and observation, with a fund of common sense which gave him a mature judgment possessed by few of older years. His devotion to duty was untiring, his willingness to serve unstintingly and unselfishly at all hours and under all conditions with no murmur of complaint, regardless of the patient's circumstances or of the prospect of remuneration, was beautiful to observe. He was modest, generous, sweet-natured, and charming in his bearing toward all. His patients, as they came to know him, held him in highest esteem and in closest friendship. It was touching, and spoke eloquently of his worth, to witness people twice and thrice his age coming miles from his former home to secure his counsel, sympathy, and advice.

Dr. Hotchkiss entered upon his professional work in Hartford in August, 1909. He became a member of the Hartford Medical Society the following year, and was the assistant secretary at the time of his death. His sterling character was appreciated; every one was his friend. He had no enemies.

Two brief years only were allotted to Dr. Hotchkiss in which to pursue his life work after completing his hospital course, but they were years full of good work, of promise, of satisfaction and of love, for he married early in the first year Miss Edith Leonard of Brandon, Vt., with whom he was most happy. Dr. Hotchkiss accomplished as much in these two years, when the result is measured by the amount of kindness, good cheer, and conscientious service given out to his fellowmen, as some accomplish in a lifetime. His untimely death is a signal loss to the medical profession, to the community, and to this Society. His noble character, his rare qualities and attainments, will ever remain with us who mourn him, a blessed memory.

Norton Royce Hotchkiss, M.D., New Haven.

JAY W. SEAVER, M.D., NEW HAVEN.

On January 29, 1912, there passed from our number a man who in the comparatively short period of his life endeared himself to many hearts and left an ennobling influence on the profession to which he belonged and on the community to which he devoted his best energies.

It is well for us to spend a few moments of this meeting in recalling some of the more marked incidents in the life of Norton Royce Hotchkiss, who was the loved friend and brother of every man in this Society.

He was born in Fort Mill, S. C., on August 23, 1870, from a stock that had immigrated to this country and settled in New Haven in 1641. It is believed that his immigrant ancestor, Samuel Hotchkiss, came from Essex, England, and from him have descended nearly all if not all of the people of that name who live in this part of the country. They were people of industry and mechanical skill who played an important part in the early history of New England and the War of the Revolution, and when Seth Hotchkiss, the father of the deceased, moved to South Carolina from Cheshire he carried with him his love for mechanical pursuits and established a factory for making wagons in the town where he settled. Norton was the youngest child of a family of eight and his early education was confined to the public schools and the academy near his home. He early in life decided to devote himself to medical practice, and after studying for a year in the office of Dr. Samuel Kell, a noted physician and surgeon of that region, he entered the South Carolina Medical College in Charleston, S. C., where he spent a year, and then went to Baltimore, where he entered the University of Maryland Medical Department and was graduated in 1891 and had the honor of being elected the president of his

class. He served during his senior year as interne in the Hospital of the University, and after graduation came to New Haven, where he opened an office on Thompson Street, although he soon moved to Shelton Avenue, where he built up a large practice and made many friends who were steadfast to the end. Ten years ago he moved to 219 York Street, where he closed one of the most brilliant careers that the medical profession of this region has ever known.

In a period of nineteen years he had, by his own efforts, won the honors that come to but few men in the profession, having been president of the County Medical Society in 1908, and of the New Haven Medical Association at the time of his death. He was Surgeon General of the State on the staff of Governor Rollin S. Woodruff in 1907-9. He served in the Governor's Foot Guard for fifteen years and had the grade of captain. He was a member of many fraternal organizations and clubs, among others the Sons of the American Revolution, the Graduates Club, Kappa Sigma and Alpha Kappa Kappa. He was a thirty-second degree Mason, a Noble of the Mystic Shrine and a Knight Templar.

His domestic life was ideal. He married Miss Elizabeth Lucy Belk in 1893 and three children were born to them, two daughters and a son who bears the family name of Royce.

In his professional career he displayed those qualities that were bound to endear him to a large clientele, for he had a most pleasing personality that carried sunshine into the sick room and an enthusiasm for his work that made him master of the latest knowledge in his art. He was the first physician in this region to use the Beebe serum for exophthalmos. His mechanical sense made him a surgeon of eminence as soon as he had the facilities for this line of practice, and before the opportunity came he had gone to New York for several years to work under the direction of Dr. Gill Wylie in surgery and his loyalty to this instructor was always in evidence when he counted the great teachers who had influenced him.

With the opening of the Elm City Private Hospital, which he had helped to plan and build, he was free to work in a larger

field, and he entered it with joy and confidence, and success seemed to crown his every effort. Soon St. Raphael's Hospital was opened and he was appointed on its staff of surgeons. He welcomed this opportunity to help the poor and his work was done with the same care for its wards that was given to his more wealthy cases. He loved his work and his patients. To the very end of his life his heart beat warm in sympathy for the distressed, and only three days before he died he removed some stitches from the scalp of a little boy who had been run down by an automobile about a week before and had been brought to his office, where, sick though he was, he had cleansed and dressed the wounds with consummate skill, and now when the case was ended he handed the scissors to the nurse and gathered the boy in his arms and held him against his heart while the tears came in his eyes as he probably realized that this was his last professional act and his life's work was ended, and ended with a cure while the wound of his own body had no remedy. And so he could only stand ready and waiting for the summons that he knew would soon come, and he fervently prayed and hoped that it would come while he worked. And thus it proved, for there was no long waiting, after the hand had become idle, until Death, that he had looked in the face until it had lost its terrors and become almost a friend, took him in his arms as he had held the little boy, and the patient struggle that had lasted for over two years was ended.

He had felt that his health was failing during the summer of 1909 and in the late autumn he had his blood examined to see what light could be thrown on the cause of his weakness. It was found that leukemia was established, and while every known remedy and treatment was tried, and with temporary improvement so that he was able to attend to a limited practice after a year's retirement, the result could not be changed from the dark prognosis that had been first made.

As a man he won all honest hearts to his friendship. He spoke ill of no man. He assigned the fairest motives to every action and he worked for his cases with a zeal that became a passion. He was social and friendly by nature and the gladness

of life radiated from him until sorrow and fear were driven away. His was the ideal presence for the sick room, but it fitted in equally well in the hall of fraternal goodfellowship. His sense of humor was keen and it often saved him from the bitterness of controversy. His sympathy was broadly democratic and he served his town and city as he served his patients, gladly, cheerfully, ably. He was a Christian, in training and temperament and practice, and it was easy for him to follow in the footsteps of the Master, for he wanted to do good to all men. This he did; for no man can say he wronged him or injured him even in thought. He was a nobleman by birth and by life.

As a physician he did more in the few years that made the span of his life than most of us do in the longer period. He had won the esteem and confidence of his brothers in practice and he had endeared himself to a large clientele by his helpfulness and able care. What more can we say?—he was indeed the Beloved Physician.

Edward Hubbard Welch, M.D., Winsted.

WILLIAM S. RICHARDS, M.D., WINSTED.

Dr. E. H. Welch was what the younger generation may call the last of the old style of family practitioner, at least in this county. This is not meant as to knowledge, capacity, or attainment, but in the giving of the whole life for the profession, and the families to whom he was physician and friend. Of this style he was an example of the purest type for thirty-five years, and those of us who knew him best mourn him most. In full vigor of manhood, he was the physician, gentleman, and friend, always inspiring in his patients love, devotion, and confidence to the fullest degree. In an illness covering several years, doomed from the beginning, which he well knew, no man ever waited for the end with more courage and less complaining than he.

Dr. Edward Hubbard Welch, the youngest son of James and Lavinia Hubbard Welch, was born in Winsted, Conn., March 15, 1852, and came from a long line of physicians. His early education was received in the schools of his native town, his medical education in the College of Physicians and Surgeons, New York, and later at Yale College, from which he graduated in 1876. Immediately he began the practice of his profession in Winsted in partnership with his father, Dr. James Welch, and this continued until the death of his father in 1886. From that time until the end came he practiced in his native and the surrounding towns, having the largest consulting practice in the county.

In September, 1876, he married Nellie Munger, who, with their daughter, Louise Wing Welch, survives him.

Dr. Welch was Post Surgeon, C. N. G., Surgeon to the C. N. E. R. R., a member and ex-president of both County and State Medical Societies, and also a member of the National Medical Society.

Dr. Alverd E. Winchell, New Haven.

CATHERINE WINCHELL, NEW HAVEN.

Winchell is a name of early Saxon origin, and is an abbreviation of the earlier name Winchelsey or Winchelsea. The name first becomes familiar in 1293, when Robert Winchell was elected Archbishop of Canterbury.

The Earldom of Winchelsea was founded in 1628.

Robert Winchell,—the ancestor of nine-tenths of those bearing the name in America,—was at Dorchester, Mass., in 1635, and at Windsor, Conn., in 1638.

Many Americans have added to the luster of the name, among them the renowned student, author and geologist, Prof. Alexander Winchell, who was a cousin of the subject of this sketch.

In the eighth generation from Robert Winchell, Alverd Ezra Winchell was born in Egremont, Mass., June 21, 1831. He was graduated from Wesleyan University in 1857, and received his degree of Master of Arts from that institution in 1860. In 1865 he obtained his degree as a physician from the College of Physicians and Surgeons in New York.

He came to New Haven after his graduation and was a resident of that city for forty-seven years. At the time of his death he was the oldest member of the Connecticut Medical Society, and one of the most prominent of the older physicians of New Haven.

With the late Peter R. Carle he projected and built the Hyperion Theater, which he owned for some years, and afterwards in partnership with George W. H. Hughes.

For fourteen years Dr. Winchell was a member of the New Haven Board of Health and served as president of that body. He was also president of the New Haven County Medical Society and a member of the Connecticut Medical Society.

He was married three times. His first wife was Helen Hinman of Southbury. She died in 1863. In 1865 he married Mary Mitchell of South Britain. She died in 1874. In 1876 he married Catherine Shepard of Madison, Conn., who survives him. There is but one child, a daughter, who is the wife of Dr. William A. Brooks of Boston.

Dr. Winchell was a member of the County Medical Society, the New Haven Medical Society, the Masons, and Phi Beta Kappa.

Although almost eighty-one years of age, Dr. Winchell attended to his practice, his business, and all his customary activities as usual until three weeks before his death, when he was attacked by pneumonia, which proved fatal.

CHARTER AND BY-LAWS.

Resolution Amending the Charter of the Connecticut Medical Society.

GENERAL ASSEMBLY.

JANUARY SESSION, A.D. 1905

Resolved by this assembly:

Section 1. That the charter of the Connecticut Medical Society, approved June 5, 1834, and as the same has been amended from time to time, be and the same is hereby amended so as to read as follows:

That all persons who are now members of the Connecticut Medical Society and all physicians and surgeons who shall hereafter be associated with them in pursuance of the provisions of this resolution shall be and remain a body politic and corporate by the name of The Connecticut State Medical Society; and by that name they and their successors shall and may have perpetual succession; shall be capable of suing and being sued, pleading and being impleaded, in all suits of whatever name and nature; may have a common seal and may alter the same at pleasure; and may also purchase, receive, hold, and convey any estate, real and personal, to an amount not exceeding one hundred thousand dollars.

Sec. 2. The superintendence and management of the corporation shall be vested in a board to be known and called by the name of The House of Delegates of The Connecticut State Medical Society, which board shall have power to establish offices in said corporation and prescribe the duties of the several officers and of the members of said corporation and may fix their compensation; to establish the conditions of admission to and dismission and expulsion from said society; to lay a tax from time to time upon the members, not exceeding five dollars in each year, and to collect the same; to hold and dispose of all moneys

and other property belonging to the corporation in such manner as they may deem proper to promote the objects and interests of the society; and in general to make such by-laws and regulations for the due government of the society, not repugnant to the laws of the United States or of this state, as may be deemed necessary.

Sec. 3. The House of Delegates of The Connecticut State Medical Society shall be composed of, (1) ex officio, the president and secretary of the society; (2) delegates to be elected annually as hereinafter provided, by the several county medical associations in this state which heretofore have been and now are affiliated with The Connecticut Medical Society; and (3) eight councilors to be elected from time to time as hereinafter provided.

Sec. 4. An annual meeting of the corporation for the election of officers and such other business as may from time to time arise, shall be held during the month of May in each year and upon such day in said month as the House of Delegates shall from time to time prescribe.

Sec. 5. At a meeting to be held at least twenty days in advance of the annual meeting of the corporation in each year, every affiliated county association shall elect a delegate or delegates to represent it in the House of Delegates of this society in the proportion of one delegate to each thirty-five members, or any part of that number, and the secretary of such affiliated county association shall send a list of such delegates to the secretary of this corporation at least twenty days before the date of said annual meeting.

Sec. 6. The first councilors shall be appointed by the president, one from each county, who shall serve for one year or until their successors shall be elected. At their annual meeting in the year 1906, each affiliated county medical association shall elect one councilor, of whom those elected in Hartford, New London, Windham, and Middlesex counties shall serve for one year, and those elected in New Haven, Fairfield, Litchfield and Tolland counties shall serve for two years; and at the expiration of the term of office of the councilors so elected, each affiliated county medical association shall, biennially thereafter, elect a councilor, who shall serve for two years.

Sec. 7. The secretary of every affiliated county medical association in this state shall, in May, 1905, and annually thereafter, at least ten days before the annual meeting of the society, file with its secretary a list of all members of said respective county associations who are at the time in good and regular standing, and thereupon all such persons shall become and be members of The Connecticut State Medical Society without further action.

The Connecticut State Medical Society.

BY-LAWS.

CHAPTER I.

Section 1. Name. The name and title of this organization shall be The Connecticut State Medical Society.

Sec. 2. Purposes of the Society. The purposes of this Society shall be to federate and bring into one compact organization the entire medical profession of the State of Connecticut, and to unite with similar societies of other states to form the American Medical Association; to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the material interests of its members and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of State medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public, in the prevention and cure of disease, and in prolonging and adding comfort to life.

Sec. 3. Component Associations. Component Associations shall consist of those county medical associations which heretofore have been and now are affiliated with The Connecticut Medical Society.

Sec. 4. Composition of Society. This Society shall consist of members, delegates, guests, and honorary members.

Sec. 5. Members. Members of this Society shall be members of the component county medical associations.

Sec. 6. Delegates. (1) Delegates shall be those members who are elected by the component county associations; (2) the

Councilors; their respective component associations in the House of Delegates of this Society.

Sec. 7. Guests. Any distinguished physician not a resident of this State who is a member of his own State Association, may become a guest during any annual session on invitation of the officers of this Society and shall be accorded the privilege of participating in all the scientific work for that session.

Sec. 8. Honorary Members. Eminent physicians, not residents of this State, may be elected Honorary Members by a major vote of the House of Delegates after nomination of one year, but such shall not exceed three in any one year.

Honorary Members shall have all the privileges accorded by Section 7 to guests.

CHAPTER II.—MEMBERSHIP.

Section 1. The name of a physician upon the properly certified roster of members of a component association, who has paid his annual assessment, shall be prima facie evidence of membership in this Society.

The annual tax shall be collected from all such members except the secretaries of County Medical Associations, but the taxes of any member may be remitted by vote of the House of Delegates upon recommendation of any County Medical Association.

Sec. 2. Any person who is under sentence of suspension or expulsion from a component association, or whose name has been dropped from its roll of members, shall not be entitled to any of the rights or benefits of the Society, nor shall he be permitted to take part in any its proceedings until he has been relieved of such disability.

Sec. 3. Each member in attendance at the annual session shall enter his name on the registration book, indicating the component association of which he is a member.

CHAPTER III.—HOUSE OF DELEGATES.

Section 1. The House of Delegates shall be the legislative and business body of the Society, and shall consist of (1) dele-

gates elected by the component county associations; (2) the Councilors; and (3), ex officio, the President and Secretary of this Society.

Sec. 2. The House of Delegates shall meet on the first day of the annual session. It may adjourn from time to time as may be necessary to complete its business, provided that its hours shall conflict as little as possible with the General Meetings. The order of business shall be arranged as a separate section of the programme.

Sec. 3. Each component association shall be entitled to send to the House of Delegates each year, one delegate for every thirty-five members, or any part of that number.

Sec. 4. Fifteen delegates shall constitute a quorum.

Sec. 5. It shall, through its officers, Council, and otherwise, give diligent attention to and foster the scientific work and spirit of the Society, and shall constantly strive to make each annual session a stepping-stone to further advancement.

Sec. 6. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public health legislation, and to diffuse popular information in relation thereto.

Sec. 7. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interests in such county associations as already exist and for organizing the profession in counties where associations do not exist. It shall especially and systematically endeavor to promote friendly intercourse among physicians of the same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

Sec. 8. It shall encourage post-graduate and research work, as well as home study, and shall endeavor to have the results discussed and utilized.

Sec. 9. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body.

Sec. 10. It shall have authority to appoint committees for special purposes from among members of the Society who are not members of the House of Delegates.

Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

Sec. 11. It shall approve all memorials and resolutions issued in the name of the Society before the same shall become effective.

Sec. 12. Sections and District Societies. The House of Delegates may provide for a division of the scientific work of the Society into appropriate sections, and for the organization of such Councilor District Associations as will promote the best interests of the profession, such associations to be composed exclusively of members of component county associations.

CHAPTER IV.—SESSIONS AND MEETINGS.

Section 1. The Society shall hold an annual session, during which there shall be held daily General Meetings which shall be open to all registered members, guests and honorary members.

Sec. 2. The time and place for holding each annual session shall be fixed by the House of Delegates.

Sec. 3. Special meetings of either the Society or the House of Delegates shall be called by the President, on petition of ten (10) delegates or fifty (50) members.

Sec. 4. General Meetings. All registered members may attend and participate in the proceedings and discussions of the General Meetings and of the Sections. The General Meetings shall be presided over by the President or by one of the Vice Presidents, and before them shall be delivered the address of the President and the orations.

Sec. 5. The General Meeting may recommend to the House of Delegates the appointment of committees or commissions for scientific investigation of special interest and importance to the profession and the public.

CHAPTER V.—OFFICERS.

Section 1. The officers of this Society shall be a President, two Vice Presidents, a Secretary, a Treasurer, and eight Councilors.

Sec. 2. The officers, except the Councilors, shall be elected annually. The first Councilors shall be appointed by the President, one from each county, who shall serve for one year, or until their successors shall be elected. At their annual meetings in the year 1906, each affiliated county medical association shall elect one councilor, of whom those elected in Hartford, New London, Windham, and Middlesex counties shall serve for one year, and those elected in New Haven, Fairfield, Litchfield, and Tolland counties shall serve for two years, and at the expiration of the term of office of the councilors so elected, each affiliated county medical association shall, biennially, elect a councilor, who shall serve for two years.

Sec. 3. All elections shall be by ballot, and a majority of the votes cast shall be necessary to elect.

Sec. 4. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General Session, but no delegate shall be eligible to any office named in the preceding section except that of councilor, and no person shall be elected to any such office who has not been a member of the Society for the past two years.

CHAPTER VI.—DUTIES OF OFFICERS.

Section 1. The President shall preside at all meetings of the Society and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver an annual address at such time as may be arranged, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office and, as far as practicable, shall visit by appointment the various sections of the State and assist the Councilors in building up the county associations and in making their work more practical and useful.

Sec. 2. The Vice Presidents shall assist the President in the discharge of his duties. In the event of the President's death, resignation, or removal, the Council shall select one of the Vice Presidents to succeed him.

Sec. 3. The Treasurer shall give bond in the sum of \$1,000, the manner of bonding to be left to the Council. He shall demand and receive all funds due the Society, together with the bequests and donations. He shall pay money out of the treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

Sec. 4. The Secretary shall attend the General Meetings of the Society and the meetings of the House of Delegates, and shall keep minutes of their respective proceedings in separate record books. He shall be ex-officio Secretary of the Council. He shall be custodian of all record books and papers belonging to the Society, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Society which come into his hands. He shall provide for the registration of the members and delegates of the annual sessions. He shall, with the coöperation of the secretaries of the component associations, keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county association, and, on request, shall transmit a copy of this list to the American Medical Association. He shall aid the Councilors in the organization and improvement of the county associations and in the extension of the power and usefulness of this Society. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall employ such assistants as may be ordered by the House of Delegates, and shall make an annual report to the House of Delegates. He shall supply each component association with the necessary blanks for making their annual reports. Acting with the Committee on Scientific Work, he shall prepare

and issue all programmes. The amount of his salary shall be fixed by the Council.

CHAPTER VII.—COUNCIL.

Section 1. The Council shall consist of one Councilor from each county and the President and Secretary *ex officio*. It shall be the Finance Committee of the House of Delegates. Five Councilors shall constitute a quorum.

The Board of Councilors shall appoint from its own members two members who, with the Treasurer of the Society, shall constitute a sub-committee to be designated a Committee on the Permanent Funds, whose duty it shall be to advise on the investment of such funds as the Society may have or receive by bequest or donation, according to the laws of the State of Connecticut governing trust funds. This committee shall, through the Chairman of the Council, recommend to the House of Delegates the disposition to be made of the permanent funds, both principal and income.

Sec. 2. The Council shall meet daily during the session, and at such other times as necessity may require, subject to the call of the chairman or on petition of three Councilors. It shall meet on the last day of the annual session of the Society to organize and outline work for the ensuing year. It shall elect a chairman and a clerk, who, in the absence of the Secretary of the Society, shall keep a record of its proceedings. It shall, through its chairman, make an annual report to the House of Delegates.

Sec. 3. The Board of Councilors shall constitute the nominating committee of the Society. They shall report as such to the House of Delegates on the first day of the general session. After the report has been submitted an opportunity shall be given for other nominations to be made.

Sec. 4. Each Councilor shall be organizer, peacemaker, and censor for his district. He shall visit the counties in his district at least once a year for the purpose of organizing component associations where none exist; for inquiring into the condition of the profession, and for improving and increasing the zeal of

the county associations and their members. He shall make an annual report of his work and of the condition of the profession of each county in his district at the annual session of the House of Delegates.

Sec. 5. The Council shall be the Board of Censors of the Society. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component associations, or to this Society. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or component associations on which an appeal is taken from the decision of an individual Councilor, and its decision in all such matters shall be final.

Sec. 6. The Council shall provide for and superintend the publication and distribution of all proceedings, transactions, and memoirs of the Society, and shall have authority to appoint an editor and such assistants as it deems necessary. All money received by the Council and its agents, resulting from the discharge of the duties assigned to them, must be paid to the Treasurer of the Society. As the Finance Committee, it shall annually audit the accounts of the Treasurer and Secretary and other agents of this Society, and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of this Society during the year, and the amount of all other property belonging to the Society under its control, with such suggestions as it may deem necessary. In the event of a vacancy in the office of the Secretary or the Treasurer, the Council shall fill the vacancy until the next annual election.

CHAPTER VIII.—COMMITTEES.

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Medical Examination and Medical Education.

A Committee on Honorary Members and Degrees.

A Committee on Arrangements, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be one, and shall determine the character and scope of the scientific proceedings of the Society for each session, subject to the instructions of the House of Delegates. Fifteen days previous to each annual session it shall prepare and issue a programme announcing the order in which papers, discussions and other business shall be presented.

Sec. 3. The Committee on Public Policy and Legislation shall consist of one member from each component association, and the President and Secretary. Under the direction of the House of Delegates it shall represent the Society in securing and enforcing legislation in the interest of the public health and scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall strive to organize professional influence so as to promote the general good of the community in local, state, and national affairs and elections.

Sec. 4. The Committee on Medical Examination and Medical Education shall consist of five members, who shall be appointed in accordance with Sec. 4717 of the general statutes of the State of Connecticut. The committee shall conduct the medical examination of candidates for certificates of qualifications for license to practice medicine in the State in accord with the requirements of the Medical Practice Act. It shall annually present a written report to the House of Delegates. The committee shall also be a committee on medical education and shall coöperate with the council of education of the American Medical Association in the effort to elevate the standard of medical education in the United States.

Sec. 5. The Committee on Honorary Members and Degrees may present annually to the House of Delegates the names of not more than three eminent physicians, not residents of this state, as candidates for honorary membership in this Society. Such

candidates may be elected honorary members in accordance with the provisions of Chap. I, Sec. 8, of the By-Laws.

Sec. 6. The Committee of Arrangements shall be appointed by the component association in which the annual session is to be held. It shall provide suitable accommodations for the meeting places of the Society and of the House of Delegates, and of their respective committees. Its chairman shall report an outline of the arrangements to the Secretary for publication in the programme, and shall make additional announcements during the session as occasion may require.

CHAPTER IX.—RECIPROCITY OF MEMBERSHIP WITH OTHER STATE SOCIETIES.

In order to broaden professional fellowship, this Society is ready to arrange with other State Medical Societies for an interchange of certificates of membership, so that members moving from one State to another may avoid the formality of reëlection.

CHAPTER X.—FUNDS AND EXPENSES.

Funds shall be raised by an equal per capita assessment on each component association. The amount of the annual assessment per member shall be fixed by the House of Delegates.

Funds may also be raised by voluntary contributions, for the Society's publications, and in any other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray the expenses of the Society, for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Finance Committee before action is taken thereon.

CHAPTER XI.—REFERENDUM.

Section 1. A General Meeting of the Society may, by a two-thirds vote of the members present, order a general referendum on any question pending before the House of Delegates, and when so ordered the House of Delegates shall submit such question to

the members of the Society, who may vote by mail or in person, and, if the members voting shall comprise a majority of all the members of the Society, a majority of such vote shall determine the question and be binding on the House of Delegates.

Sec. 2. The House of Delegates may, by a two-thirds vote of its members present, submit any question before it to a general referendum, as provided in the preceding section, and the result shall be binding on the House of Delegates.

CHAPTER XII.—COUNTY ASSOCIATIONS.

Section 1. All County Associations now in affiliation with the Connecticut Medical Society shall be component parts of this Society.

Sec. 2. Each County Association shall judge of the qualification of its members, but as such associations are the only portals to this Society and to the American Medical Association, all reputable and legally registered physicians, except those who practice or claim to practice or lend support to any exclusive or irregular system of medicine, shall be entitled to membership.

No physician shall be admitted to or retain membership in a County Medical Association after the expiration of his present contract who has agreed to furnish medical services to any organization or union for a stipulated sum per member, or for other consideration than the regular local fee for such services.

Sec. 3. Any County Medical Association may suspend or expel any member who is guilty of improper or unprofessional conduct, by a two-thirds vote of the members present and voting at any regular meeting, provided due notice has been given on the programme of said meeting at least ten days before its session. When from any cause a member of the Connecticut State Medical Society ceases to be a member of one of the component county medical associations, his membership in the Connecticut State Medical Society shall terminate, but any physician who may feel aggrieved by the action of the association of his county in refusing him membership or in suspending or expelling him, shall have the right to appeal to the Council, and its decision shall be final.

Sec. 4. In hearing appeals the Council may admit oral or written evidence as in its judgment will be best and to most fairly present the facts, but in case of every appeal, both as a Board and as individual councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Sec. 5. When a member in good standing in a component association moves to another county in this State, his name, on request, shall be transferred, without cost, to the roster of the county into whose jurisdiction he moves.

Sec. 6. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the association in whose jurisdiction he resides.

Sec. 7. Each component association shall have general direction of the affairs of the profession in its county, and its influence shall be constantly exerted for bettering the scientific, moral, and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the Society as a whole, to increase the membership until it embraces every qualified physician in the county.

Sec. 8. At some meeting in advance of the annual session of this Society, each county association shall elect a delegate or delegates to represent it in the House of Delegates of this Society in the proportion of one delegate to each thirty-five members, or any part of that number, and the Secretary of the Association shall send a list of such delegates to the Secretary of this Society at least twenty days before the annual session.

In the case of death, illness or disability of a Councilor or delegate, the President of the County Association in which the vacancy occurs shall appoint a substitute Councilor or delegate, with full power to represent his county during the Councilor's or delegate's disability, or until the successor of such appointee is elected at the next meeting of the County Medical Association.

Sec. 9. The Secretary of each component association shall keep a roster of its members and of the non-affiliated registered

physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of registration in this State, and such other information as may be deemed necessary. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

Sec. 10. The Secretary of each component association shall forward its assessment to the Treasurer at least ten days before the annual session, and its roster of officers and list of non-affiliated physicians of the county to the Secretary of this Society each year twenty days before the annual session.

Sec. 11. The several county medical associations shall have power to adjourn; to call special meetings, as they shall deem expedient; and to adopt such by-laws as they find desirable, not contrary to the laws of this State or the charter and by-laws of The Connecticut State Medical Society.

CHAPTER XIII.—MISCELLANEOUS.

Section 1. No address or paper before this Society, except those of the President and orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject except by unanimous consent.

Sec. 2. All papers read before the Society or any of the Sections shall become its property. Each paper shall be deposited with the Secretary when read. No paper shall be read before this Society which has been previously published or read before any other organization.

Sec. 3. The deliberations of this Society shall be governed by parliamentary usage as contained in Roberts' Rules of Order, when not in conflict with the charter and by-laws.

Sec. 4. The Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

CHAPTER XIV.—AMENDMENTS.

These By-Laws may be amended at any annual session by a majority vote of all delegates present at that session, after the amendment has been laid on the table until the next annual session. If, however, the proposed alteration has been published in the notice of the session, it may be acted upon after it has laid on the table one day.

MEMBERS OF THE
CONNECTICUT STATE MEDICAL
SOCIETY.

MEMBERS OF THE SOCIETY.

HONORARY MEMBERS.

WILLIAM MCCOLLOM.....	Brooklyn, N. Y.
JOHN SHAW BILLINGS.....	New York City, N. Y.
THOMAS ADDIS EMMETT	New York City, N. Y.
WILLIAM HENRY WELCH.....	Baltimore, Md.
ROBERT FULTON WEIR.....	New York City, N. Y.
SIR JOSEPH LISTER.....	London, England.
HON. CHARLES E. GROSS.....	Hartford, Conn.
DAVID WEBSTER.....	New York City, N. Y.
SIR JAMES GRANT.....	Ottawa, Canada.
HENRY O. MARCY.....	Boston, Mass.
T. MITCHELL PRUDDEN.....	New York City, N. Y.
WILLIAM W. KEEN.....	Philadelphia, Penn.
JAMES W. McLANE.....	New York City, N. Y.
J. W. S. GOULEY.....	New York City, N. Y.
REYNOLD WEBB WILCOX.....	New York City, N. Y.
WILLIAM OSLER.....	Oxford, England.
GEORGE M. STERNBERG.....	Washington, D. C.
FRANCIS DELAFIELD.....	New York City, N. Y.
MAURICE H. RICHARDSON.....	Boston, Mass.

Handwritten: = Remains { Council Dec 18:13.
June 2.14

ACTIVE MEMBERS.

The names of those who have been Presidents are in capitals.

HARTFORD COUNTY.

S. W. IRVING, M.D., New Britain, *President*.

JOHN F. DOWLING, M.D., Hartford, *Vice President*.

PAUL P. SWETT, M.D., Hartford, *Secretary*.

Councilor—OLIVER C. SMITH, M.D., Hartford.

Censors—HENRY A. DEANE, M.D., FREDERICK B. WILLARD, M.D.,
GEORGE N. BELL, M.D.

Annual Meeting, First Tuesday in April; Semi-Annual Meeting,
Fourth Tuesday in October.

Hartford:

Nathan Mayer.....	904 Main Street.
David Cray	926 Main Street.
John B. Lewis.....	700 Main Street.
Gustavus P. Davis.....	700 Main Street.
Charles E. Froelich.....	125 Oakland Terrace.
HARMON G. HOWE.....	137 High Street.
William W. Knight.....	254 Trumbull Street.
Thomas D. Crothers.....	142 Fairfield Avenue.
Ellen H. Gladwin.....	705 Asylum Avenue.
Frederick S. Crossfield.?	75 Pratt Street.
Marcus M. Johnson.....	122 Woodland Street.
William D. Morgan.....	49 Pearl Street.
John F. Axtelle.....	635 Main Street.
George K. Welch.....	26 State Street.
+++ Phineas H. Ingalls.....	49 Pearl Street.
Edward K. Root.....	49 Pearl Street.
John Howard.....	331 Trumbull Street.
Charles D. Alton.....	75 Pratt Street.
Oliver C. Smith.....	44 High Street.
Joseph E. Root.?	67 Pearl Street.
William Porter, Jr.....	179 Allyn Street.

Frederick T. Simpson.....	122 High Street.	
George R. Miller.....	51 Church Street.	
Charles C. Beach.....	125 Trumbull Street.	
Gideon C. Segur.....	67 Farmington Avenue.	
George C. Bailey.....	65 Church Street.	
Alva E. Abrams.....	36 Pearl Street.	
<u>Charles E. Taft.</u> ² St Thomas 101 1/2, also 92 1/2	98 High Street.	< + + 1/2
Thomas F. Kane.....	517 Main Street.	
Arthur J. Wolff.....	904 Main Street.	
Ansel G. Cook.....	179 Allyn Street.	T + +
Edwin A. Down.....	902 Main Street.	
Daniel F. Sullivan ²	64 Church Street.	
<u>EVERETT J. McKNIGHT</u> ^{6/2/14}	110 High Street.	+ + +
Benjamin S. Barrows.....	164 High Street.	
Michael A. Bailey.....	434 Main Street.	
<u>George N. Bell</u> ^{6/2/14}	44 High Street.	+ + +
Frank L. Waite.....	68 Pratt Street.	54e + + + C
Charles S. Stern.....	75 Pratt Street.	
Franklin L. Lawton.....	295 Main Street.	
John H. Rose.....	75 Pratt Street.	
John B. Waters.....	281 Trumbull Street.	
Joseph B. Hall.....	36 Pearl Street.	
Edward O. Elmer.....	805 Park Street.	
Janet M. Weir.....	282 Sigourney Street.	
John F. Dowling.....	1315 Main Street.	
Philip D. Bunce.....	98 High Street.	
Wilton E. Dickerman.....	125 Trumbull Street.	
<u>John B. Boucher</u>	25 Charter Oak Avenue.	< not to be
Levi B. Cochran.....	50 Farmington Avenue.	
James H. Naylor.....	3 Main Street.	
Charles P. Botsford.....	1337 Main Street.	
James H. Standish.....	340 Windsor Avenue.	
Michael H. Gill.....	36 Pearl Street.	line the 4
John B. McCook.....	390 Main Street.	appeal
John W. Felty.....	902 Main Street.	line the 4
Thomas W. Chester.....	110 High Street.	
Joseph A. Kilbourn.....	271 Park Street.	
Thomas B. Enders.....	3 Highland Street.	
Charles A. Goodrich.....	5 Haynes Street.	
<u>Alfred M. Rowley</u> ^{6/2/14}	53 Main Street.	< + + +
Irving DeL. Blanchard.....	73 Windsor Avenue.	
Emil G. Reinert.....	109 Ann Street.	
Heman A. Tyler, Jr.	54 Main Street.	
Frederick L. McKee.....	68 Pratt Street.	

6/2/14	<u>Edward R. Lampson</u> ?	125	Trumbull Street.
club B.	E. Terry Smith.	36	Pearl Street.
	William H. FitzGerald.	904	Main Street.
	Emma J. Thompson.	287	Trumbull Street.
	Patrick J. Ryan.	316	Park Street.
	Walter R. Steiner.	4	Trinity Street.
	Ellen P. O'Flaherty.	140	Main Street.
	C. Brewster Brainard.	98	High Street.
	Eckley R. Storrs.	179	Allyn Street.
1/4 11/14	<u>Ernest A. Wells</u> .	2	Garden Street.
	William H. Van Strander.	61	Church Street.
	James H. Conklin.	89	Pratt Street.
	Orin R. Witter.	44	High Street.
	Frederick B. Willard?	80	Church Street.
	Henry E. Adams.	194	High Street.
	William T. Owens.	397	Capitol Avenue.
	John C. Pierson.	50	Windsor Avenue.
	Henry F. Stoll.	75	Pratt Street.
	Paul P. Swett. ✓	803	Main Street.
	Charles J. Fox.	36	Pearl Street.
	Mark S. Bradley.	36	Pearl Street.
	Harry C. Clifton.	98	High Street.
	Robert S. Starr.	75	Pratt Street.
	Arthur C. Hcublein.	110	High Street.
	Whitefield N. Thompson.	30	Washington Street.
	Maude W. Taylor.	107	Edwards Street.
	James J. Boucher.	429	Capitol Avenue.
	Isaac W. Kingsbury.	36	Pearl Street.
	Edward J. Turbert.	18	New Park Avenue.
	Patrick F. McPartland.	1341	Main Street.
	Thomas F. Welch.	356	Windsor Avenue.
	James C. Wilson.	164	High Street.
	Robert L. Rowley.	98	High Street.
	Horace C. Swan.	11	Lincoln Street.
	Otto G. Wiedman.	377	Albany Avenue.
1/4 wait	<u>Thomas N. Hepburn</u> ?	42	High Street.
	Henry A. Martelle.	112	High Street.
	Charles T. Beach.	686	Main Street.
	Edward H. Blair.	389	Main Street.
	James W. Ward.	437	Capitol Avenue.
	George F. Vail.	36	Pearl Street.
	Clarence M. Hatheway.	110	High Street.
	Albert R. Keith.	43	Farmington Avenue.
	Joseph P. Ryan.	44	Church Street.

c. 6/2/14 Paul Plummer Swett.

Arthur H. Griswold.....	148 Church Street.
David J. Molumphy.....	517 Main Street.
Morris Tuch.....	16 Village Street.
John B. Griggs.....	772 Asylum Avenue.
Andrew M. Outerson.....	104 Church Street.
Charles H. Borden.....	36 Pearl Street.
James F. Rooney.....	308 Park Street.
George A. Smith.....	50 Farmington Avenue.
Henry Bickford.....	111 Ann Street.
Paul Waterman.....	44 High Street.
William B. Bartlett.....	148 High Street.
Howard B. Haylett.....	158 High Street.
Domenico DeBonis.....	94 Windsor Avenue.
Calvin Weidner.....	904 Main Street.
Jeremiah E. McSweeney.....	207 Main Street.
John C. Rowley.....	50 Farmington Avenue.
Paul Plummer.....	68 Pratt Street.
William E. McClellan.....	125 Trumbull Street.
Henry Altshul.....	902 Main Street.
Henry C. Russ.....	114 Woodland Street.
Louis Simonson.....	1273 Main Street.
Dwight W. Tracy.....	5 Wetherfield Avenue.
Albert E. Cobb.....	904 Main Street.
Abraham Fischer.....	149 Windsor Avenue.
Walter G. Murphy.....	275 Farmington Avenue.
Richard J. Dwyer.....	186 Franklin Avenue.

Avon:

Vernon H. C. Morse.

Berlin—EAST BERLIN:

Thomas C. Hodgson.

Bloomfield:

Thomas H. Denne.

Bristol:

Arthur S. Brackett.
Timothy G. O'Connell.
William M. Curtis.
Benedict N. Whipple.
William W. Horton.

FORESTVILLE:

B. F. Donahue.

Canton—COLLINSVILLE:

George F. Lewis.
Ralph B. Cox.
George W. Eddy.
S. S. S. Campbell.

East Hartford:

Thomas S. O'Connell.
Franklin H. Mayberry.
Edward H. Truex.

East Windsor—BROAD BROOK:

Howard O. Allen.
Harold S. Backus.

Enfield—THOMPSONVILLE:

George T. Finch.
 Henry G. Varno.
 Michael J. Dowd.
 John L. Bridge.
 8. *wait to go* Thomas G. Alcorn.

HAZARDVILLE:

Simon W. Houghton.

Farmington—Unionville:

Michael J. Morrissey.
 William T. Morrissey.

Glastonbury:

Charles G. Rankin.
 William S. Kingsbury.

SOUTH GLASTONBURY:

Henry M. Rising.
 Harry B. Rising.

Manchester:

Harry R. Sharpe.

SOUTH MANCHESTER:

Thomas H. Weldon.
 William S. Gillam.
 Noah A. Burr.
 Thomas G. Sloan.
 George W. May.
 William R. Tinker.

New Britain:

George Clary.
wait Erastus P. Swasey. *3*
 Michael J. Coholan.
 Robert M. Clark.
 Hermann Strosser.
 Kenneth E. Kellogg.
 Thomas E. Reeks.
wait Ernst T. Fromen. *1*
 Catherine H. Travis.

Theodore G. Wright.
 Maurice W. Maloney.
 John Purney.
 George H. Bodley.
 Samuel W. Irving.
 William W. Brackett.
 Joseph H. Potts.
 Arvid Anderson.

Plainville:

John N. Bull.

Rocky Hill:

Orin A. Moser.
 Julius E. Griswold.

Simsbury:

John P. Carver.

TARIFFVILLE:

Charles M. Wooster.

Southington:

Willard G. Steadman.
 William R. Miller.

South Windsor:

Henry A. Deane.
 Mary S. Tudor.

Suffield:

Joseph A. Gibbs.
 Arthur P. Noyes.

WEST SUFFIELD:

William E. Caldwell.

West Hartford:

Charles O. Purinton.
 Edwin B. Lyon.
 Ralph W. E. Alcott.
 Frank J. Ronayne.

Wethersfield:

Edward G. Fox.
Arthur W. Howard.

Windsor Locks:

Joseph A. Coogan.
William J. Coyle.
Myron P. Robinson.
Richard A. Outerson.

Windsor:

Howard F. King.

Total Number, 212

NEW HAVEN COUNTY.

LOUIS M. GOMPERTZ, M.D., New Haven, *President*.

THOMAS M. BULL, M.D., Naugatuck, *Vice President*.

WILLIS E. HARTSHORN, M.D., New Haven, *Secretary*.

Councilor—WILLIAM H. CARMALT, M.D., New Haven.

Censors—JOSEPH H. TOWNSEND, M.D., EDWARD W. SMITH, M.D.,
NELSON A. POMEROY, M.D.

Annual Meeting, Third Thursday in April; Semi-Annual, Third
Thursday in October.

New Haven:

Frederick A. Ruickoldt.....71 Olive Street.

Frederick Bellosa.....223 York Street.

WILLIAM H. CARMALT.....261 St. Ronan Street.

(T. H. Russell?).....137 Elm Street. ++

F. H. Whittemore.....69 Elm Street.

C. P. Lindsley.....196 York Street.

Henry Fleischner.....928 Grand Avenue.

M. Mailhouse.....45 Elm Street.

M. C. O'Connor.....882 State Street.

C. E. Park.....42 Elm Street.

Gustavus Eliot.....209 Church Street.

J. E. Stetson.....106 High Street.

J. F. Luby.....1210 Chapel Street.

W. W. Hawkes?.....35 High Street. wait

F. H. Wheeler.....27 Perkins Street.

Herbert E. Smith.....Woodmont.

B. L. Lambert.....578 Howard Avenue.

F. W. Wright.....48 Pearl Street.

O. T. Osborne.....252 York Street.

L. C. Peckham.....141 Greene Street.

L. S. DeForest.....335 Orange Street.

an B.	Henry L. Swain.....	232 York Street.
	Mary B. Moody.....	Sherland Avenue.
	G. F. Converse.....	1 Whalley Avenue.
	J. H. Townsend.....	62 Trumbull Street.
	C. J. Foote.....	26 Elm Street.
	S. J. Maher.....	212 Orange Street.
	J. W. Seaver.....	25 Lynwood Place.
	Louis B. Bishop.....	356 Orange Street.
a B	H. W. Ring.....	187 Church Street.
	W. C. Welch.....	44 College Street.
	A. O. Baribault.....	209 Chapel Street.
	E. M. McCabe.....	278 Orange Street.
	James M. Reilly.....	337 Cedar Street.
	C. E. Skinner.....	331 Temple Street.
	B. Austin Cheney.....	404 Whitney Avenue.
	Charles A. Tuttle.....	196 York Street.
	H. B. Ferris.....	395 St. Ronan Street.
+	Leonard W. Bacon.....	113 Whitney Avenue.
	P. S. Robinson.....	164 Grand Avenue.
u.	Arthur N. Alling.....	257 Church Street.
	R. A. McDonnell.....	1142 Chapel Street.
	E. P. Pitman.....	52 Sylvan Avenue.
	Isaac N. Porter.....	198 Dixwell Avenue.
	E. H. Arnold.....	46 York Square.
	Robert E. Peck.....	56 Howe Street.
	William C. Wurtenberg.....	28 Elm Street.
	C. S. Lamb.....	776 Howard Avenue.
+	F. N. Sperry.....	33 College Street.
2/14	W. F. Verdi.....	13 Elm Street.
	C. J. Bartlett.....	150 York Street.
	M. D. Slattery.....	566 Howard Avenue.
	W. H. Sanford.....	60 Edwards Street.
	W. M. Kenna.....	1161 Chapel Street.
+	Leonard C. Sanford.....	347 Temple Street.
	Willis H. Crowe.....	106 Whalley Avenue.
	C. H. Robbins.....	326 Grand Avenue.
	L. M. Gompertz.....	1195 Chapel Street.
	Alfred G. Nadler.....	377 Orange Street.
	Frederick C. Bishop.....	1241 Chapel Street.
	James H. Flynn.....	840 Howard Avenue.
	Frank A. Kirby.....	235 Dixwell Avenue.
	William J. Sheehan.....	1226 Chapel Street.
	John F. Sullivan.....	205 Blatchley Avenue.
	Edward F. McIntosh.....	192 York Street.

Nicola Mariani.....	119	Greene Street.	
James S. Maher.....	215	Orange Street.	
A. W. Marsh.....	1012	Whalley Avenue.	
W. N. Winne.....	1020	Whalley Avenue.	
William S. Barnes.....	193	York Street.	
Clarence L. Kilbourn.....	202	Blatchley Avenue.	
Henry H. Smith.....	43	Elm Street.	
Julia E. Teele.....	206	Hamilton Street.	
Harry L. Welch.....	44	College Street.	
(<u>Otto G. Ramsay</u>).....	251	Church Street.	hly
Thomas V. Hynes.....	1441	Chapel Street.	
H. M. Steele.....	226	Church Street.	
Willis E. Hartshorn.....	1138	Chapel Street.	wait
Richard F. Rand.....	246	Church Street.	
Edward S. Moulton.....	237	York Street.	
Timothy F. Cohane.....	486	Howard Avenue.	
W. J. Butler.....	712	Howard Avenue.	
David Bercinsky.....	360	George Street.	
Louis A. Notkins.....	700	Howard Avenue.	
T. S. McDermott.....	1334	Chapel Street.	
Francis H. Reilly.....	286	Columbus Avenue.	
Nelson A. Ludington.....	96	Park Street.	
D. M. Lewis.....	36	High Street.	
Seymour L. Spier.....	348	Crown Street.	
William H. Bean.....	40	Pleasant Street.	
E. Reed Whittemore.?	69	Elm Street.	wait
Alice P. Ford.....	1302	Chapel Street.	
Francis N. Boynton.....	46	York Square.	
Frank B. Standish.....	310	Elm Street.	
Carl W. Henze.....	22	Trumbull Street.	
Eugene M. Blake.....	15	Elm Street.	wait
George Blumer.....	64	Trumbull Street.	
Rollin McNeil.....	149	Bradley Street.	
Samuel M. Hammond.....	125	College Street.	
Archibald C. Herbert.....	1035	Whalley Avenue.	
Mary P. Dole.....	15	Elm Street.	
Treby W. Lyon.....	410	Dixwell Avenue.	
Frederick P. Lane.....	524	Chapel Street.	
Harold S. Arnold.....	122	College Street.	
Allen R. Diefendorf.....	29	College Street.	
William J. Barrett.....	63	Olive Street.	
Herman P. Hessler.....	323	George Street.	
Millard F. Allen.....	65	Dixwell Avenue.	
Frederick G. Beck.....	199	York Street.	

van 4/2/11

Mem. 6/4/14 398 January 2. Gabriel.

ACTIVE MEMBERS.

6/4/14 - R. J. Ferguson.

Wm. Raynham Townshend.	2	233 Church Street.
Jeremiah J. Cohane		342 Grand Avenue.
Frank L. Phillips		413 Temple Street.
Charles Fitzgerald		220 Orange Street.
Charles E. Sanford		150 Shelton Avenue.
John A. Murphy		28 Edwards Street.
James F. Rogers		378 George Street.
Wilder Tileston		424 Temple Street.
Cyrus E. Pendleton		244 Grand Avenue.
Marvin M. Scarbrough		22 College Street.
Joseph I. Linde		163 York Street.
Edward C. Kiernan		378 Whalley Avenue.
Jeremiah B. Sullivan	2	274 Dixwell Avenue.
Joel I. Butler		109 College Street.
Robert G. Tracy		493 Howard Avenue.
Joseph M. Flint		310 Temple Street.
Jacques Buttner		763 Orange Street.
Hugh F. Keating		619 Howard Avenue.
Alexander Bergman		157 Bradley Street.
Albertus K. Boardman		416 Forbes Avenue.
Samuel J. Goldberg		314 George Street.
Israel Kleiner		193 York Street.
Abram A. Hershman		6 High Street.

6/2/14 + 1 + 1 Ansonia: Churchman

Louis E. Cooper.
Louis H. Wilmot.
Edward K. Parmelee.
Burton I. Tolles.,

Branford:

C. W. Gaylord.
A. J. Tenney.,

Cheshire:

Edward W. Karrman.

Derby:

Frank N. Loomis.
Royal W. Pinney.
Edward O'R. Maguire,
Stephen F. Donovan,
Frank A. Elmes.
Michael A. Parlato.

Wm. H. Treat.
E. T. Sharpe.

East Haven:

Charles W. Holbrook.

Guilford:

R. B. West.

Hamden:

Walter S. Lay.

MOUNT CARMEL:

George H. Joslin.

Madison:

Milo P. Rindge.

Meriden:

N. Nickerson.
A. W. Tracey.

E. T. Bradstreet.

J. D. Eggleston.

Rem 4/1/14 Edward W. Smith. + + +

A. H. Fenn.

E. W. Pierce.

S. D. Otis.

F. P. Griswold.

E. D. Hall.

H. A. Meeks.

J. W. H. La Pointe.

Joseph A. Cooke.

Louis F. Wheatley.

Michael J. Sullivan.

H. DeForest Lockwood.

Milford:

E. C. Beach.

John W. Ives.

Dean C. Bangs.

Naugatuck:

T. M. Bull.

William J. Delaney.

Edwin H. Johnson.

E. J. Tuttle.

John J. Carroll.

James W. Robbins.

North Haven:

R. B. Goodyear.

G. S. Higgins.

Orange—WEST HAVEN:

J. F. Barnett.

Charles D. Phelps.

Victor A. Kowalewski.

Joseph L. Gilmore.

Seymour:

F. A. Benedict.

E. W. Davis.

Wallingford:

William S. Russell.

William P. Wilson.

Caroline N. Stevens.

David R. Lyman.

Irving E. Brainard.

John H. Buffum.

James D. McGaughey, Jr.

Waterbury:

F. E. Castle.

Walter L. Barber.

C. W. S. Frost.

C. S. RODMAN.

J. M. Benedict.

Carl E. Munger. *2fy always*

B. A. O'Hara.

John F. Hayes.

A. A. Crane. *2 wait*

P. T. O'Connor.

John D. Freney.

C. A. Hamilton.

George O. Robbins.

Charles H. Brown.

Edward W. Goodenough.

M. L. Cooley.

F. G. Graves.

James L. Moriarty.

George W. Russell.

D. J. Maloney.

T. J. Kilmartin.

Charles A. Monagan.

H. G. Anderson. *- Reg. 4/2/14*

H. E. Hungerford.

NELSON A. POMEROY.

Thomas J. Lally.

P. J. Dwyer.

L. J. Thibault.

Wm. A. Goodrich.

John E. Farrell.

Charles Engelkc.

Thomas J. McLarney.

D. B. Deming.

A. C. Swenson.

J. J. McLinden.

Thomas E. Parker.

Egbert L. Smith.
 John H. Dillon.
 John J. Gailey.
 Isabel Cowan.
 Arthur Variell.
 Aletta L. Bedford.
 Harold E. Hoyt.
 Arthur F. McDonald.
 Jacob Gancher.
 Henry K. Hine.
 James A. Grady.

Michael J. Lawlor.
 Edmund Russell.
 Walter L. Barber, Jr.
 Patrick J. Brennan.
 Louis F. Cassidy.
 Edward A. Herr,

Waterville:

Joseph S. Holroyd,
 Total Number, 246.

NEW LONDON COUNTY.

EDWARD P. BREWER, M.D., Norwich, *President*.
 WILLIAM H. GRAY, M.D., Mystic, *Vice President*.
 E. OLIVER WINSHIP, M.D., New London, *Secretary*.
Censor—CHARLES E. BRAYTON, M.D., Stonington.

Annual Meeting, First Thursday in April; Semi-Annual, First Thursday in October.

Baltic:

James G. Burr.

East Lyme—NIANTIC:

Frederick H. Dart.
 Edward Atkinson.

Griswold—JEWETT CITY:

George H. Jennings.
 Robert R. Agnew.

Groton:

Edmund P. Douglass.
 Frank W. Hewes.

NOANK:

William M. Hill.

Montville—UNCASVILLE:

Morton E. Fox.

New London:

Abiel W. Nelson.
 FRANCIS N. BRAMAN.
 JOHN G. STANTON.
 Charles B. Graves.
 Harold H. Heyer.
 Carlisle F. Ferrin.
 Thomas W. Rogers.
 J. Clifton Taylor.
Harry M. Lee. *wait happy*
 Emmanuel A. Henkle.
 Edwin C. Chipman.
 Gurdon S. Allyn.

Daniel Sullivan. *Walt*
 Joseph M. Ganey.
 James L. Harrington.
 Ernest O. Winship.
 William D. Cronin.
 Henry A. Rogers.
 Frank M. Dunn.
 Stuart J. Lawson.
 Herbert K. Thoms.

Lyme:

Ellis K. Devitt.

Norwich:

Wm. S. C. Perkins.
6/4/14
~~Wm. S. C. Perkins~~ Patrick Cassidy.
 LEONARD B. ALMY.
 Anthony Peck.
 Edward P. Brewer.
 Newton P. Smith.
 Witter K. Tingley.
 William T. Browne.
Rush W. Kimball + + +
 James J. Donahue.
 Harry E. Higgins.
 Charles H. Perkins.

Dennis J. Shahan.
 PATRICK J. CASSIDY.
 Edward J. Brophy.
 Leone F. LaPierre.
 William B. Casey.

TAFTVILLE:

George Thompson.

YANTIC:

Herbert H. Howe.

Stonington:

Charles E. Brayton.
 George D. Stanton.
 Charles M. Williams.

MYSTIC:

Louis M. Allyn.
 William H. Gray.

OLD MYSTIC:

Albert T. Chapman.

Waterford:

George M. Minor.

Total Number, 57.

FAIRFIELD COUNTY.

JAMES D. GOLD, M.D., Bridgeport, *President*.
 HARRIS F. BROWNLEE, M.D., Danbury, *Vice President*.
 FRANK W. STEVENS, M.D., Bridgeport, *Secretary*.
 PHILIP W. BILL, M.D., Bridgeport, *Treasurer*.
Councilor—SAMUEL M. GARLICK, M.D., Bridgeport.
Censors—SAMUEL PIERSON, M.D., HERBERT E. SMYTH, M.D.,
 WILLIAM L. GRISWOLD, M.D.

Annual Meeting, Second Tuesday in April, at Bridgeport;
 Semi-Annual, Second Tuesday in October.

Bridgeport:

Andrew J. Smith.....	191 Barnum Avenue.
GEORGE L. PORTER.....	372 State Street.
Robert Lauder	310 Fairfield Avenue.
N. E. WORDIN.....	213 Courtland Street.
F. M. Wilson.....	834-836 Myrtle Avenue.
F. B. Downs.....	906 Lafayette Street.
<i>12/14 writ</i> J. W. Wright.....	808-810-812 Myrtle Avenue.
<i>wait</i> Charles C. Godfrey. ?	340 State Street.
S. M. Garlick.....	474 State Street.
Henry Blodget.....	819 Myrtle Avenue.
J. C. Lynch.....	826 Myrtle Avenue.
C. C. Hoyt.....	1289 State Street.
G. W. Osborn.....	888 Broad Street.
J. R. Topping.....	349 Noble Avenue.
B. W. White.....	768 Fairfield Avenue.
Jacob May.....	816 North Avenue.
George B. Cowell.....	409 Noble Avenue.
George E. Ober	632 Kossuth Street.
D. C. DeWolfe.....	516 Fairfield Avenue.
Henry S. Miles.....	417 State Street.
Charles L. Banks.....	306 West Avenue.
Fessenden L. Day.....	819 Myrtle Avenue.
Edward Fitzgerald.....	526 East Washington Street.
George S. Ford.....	527 State Street.
Frank M. Tukey....	429 State Street.
William W. Gray.....	346 West Avenue.
James D. Gold.....	839 Myrtle Avenue.
Reuben A. Lockhart.....	760 Washington Avenue.
Harriet A. Thompson.....	695 Warren Street.
Frederick J. Adams.....	327 Fairfield Avenue.
W. J. O'Hara.....	361 Barnum Avenue.
David M. Trecartin.....	860 Park Avenue.
<i>wait</i> Harry W. Fleck.....	495 Fairfield Avenue.
wait Thomas L. Ellis. ✓	332 West Avenue.
Charles R. Townsend.....	446 State Street.
Herbert E. Smyth.....	376 John Street.
J. Murray Johnson.....	385 State Street.
Elmer F. Blank.....	387 Noble Avenue.
Irving L. Nettleton.....	385 Noble Avenue.
Edwards M. Smith.....	340 State Street.
Frank L. Smith.....	2178 Main Street.
David B. Wason.....	697 Warren Street.
Dorland Smith.....	834 Myrtle Avenue.

6/2/14 + 4/10/14

Frank W. Stevens.....	829 Myrtle Avenue.
George H. Warner.....	863 Myrtle Avenue.
Chester E. Blackman.....	1119 Stratford Avenue.
Henry E. Waterhouse.....	426 State Street.
Robert J. Lynch.....	52 Courtland Street.
Charles J. Levery.....	469 State Street.
Philip W. Bill.....	411 State Street.
Albert J. Roberts.....	430 State Street.
F. Winthrop Pyle.....	528 State Street.
Eli B. Ives.....	561 State Street.
Frank H. Coops.....	411 State Street.
William C. Watson.....	446 Stratford Avenue.
Jacob W. Gerber.....	325 Stratford Avenue.
Herman S. Schulz.....	390 State Street.
Nathan T. Pratt.....	1221 Stratford Avenue.
Charles N. Haskell.....	525 State Street.
Morris J. Greenstein.....	107 Benham Avenue.
Philip J. Curran.....	475 State Street.
Giovanni Formichelli.....	48 Walter Street.
James L. Sullivan.....	539 East Main Street.
Robert B. Keane.....	90 N. Washington Avenue.
William C. Bowers.....	336 State Street.
Charles W. Gardner.....	449 State Street.
Charles H. Sprague.....	168 West Liberty Street.
David C. Patterson.....	819 Myrtle Avenue.
Charles R. Pratt.....	432 State Street.
George W. Hawley.....	871 Park Avenue.
William A. LaField.....	233 Fairfield Avenue.
Abraham Bernstein.....	346 State Street.
Nicola M. Sansone.....	519 Pembroke Street.
Florence A. Sherman.....	410 State Street.

Bethel:

A. E. Barber.
George D. Wight.
Charles R. Hart.

Danbury:

E. A. Stratton.
W. S. Watson.
6/2/14 + 4/10/14 D. Chester Brown.
H. F. Brownlee. ?
George E. Lemmer.
Charles F. Craig.
William F. Gordon.

William T. Bronson.
Richard M. English.
Paul U. Sunderland.
E. J. S. Scofield.
Joseph W. Walsh.
Howard D. Moore.
Samuel F. Mullins.

Cos Cob:

Thomas J. Bergin.

Darien:

George H. Noxon.

NOROTON :

M. W. Robinson.
Albert L. House.

Fairfield:

W. H. Donaldson.

GREENFIELD HILL :

M. V. B. Dunham.

GREENS FARMS :

David W. McFarland.

Greenwich:

Frank Terry Brooks.
Fritz C. Hyde.
WILLIAM L. GRISWOLD.
Alvin W. Klein.
John A. Clarke.
William Burke.
Harriet B. Hyde.
Edward O. Parker.
Thomas J. O'Donnell.

RIVERSIDE :

Charles Smith.

Brookfield Center:

Charles A. Ryder.

Huntington—SHELTON :

GOULD A. SHELTON.
Wm. S. Randall.
Francis I. Nettleton.
John E. Black.

Monroe—STEPNEY DEPOT :

Francis J. Wales.

New Canaan:

Clarence H. Scoville.
Myre J. Brooks.
Edmund J. O'Shaughnessy.
Charles B. Keeler.
Albert A. Wheelock.

Norwalk:

James G. Gregory.
R. L. Higgins.
S. H. Huntington.
William J. Tracey.
Arthur R. Turner.
Jesse M. Coburn.
Walter Hitchcock.
Ward S. Gregory.

SOUTH NORWALK :

C. G. Bohannon.
L. M. Allen.
Henry C. Sherer.
Jean Dumortier.
Francis E. Burnell.
William H. Stowe.

EAST NORWALK :

Franklin G. Brown.

Redding:

Ernest H. Smith.

Ridgefield:

Russell W. Lowe.
Howard P. Mansfield.
William H. Allee.
Benn A. Bryon.

Sound Beach:

Sarah M. Finch.

Stamford:

A. M. Hurlbut.
Samuel Pierson.
A. N. Phillips.
F. Schavoir.
Wm. B. Treadway.
(R. I.)
R. G. Philip.
George Sherrill.
W. E. Rice.
George R. Hertzberg.
J. J. Cloonan.
Dean Foster.

Donald R. MacLean.
 Frank H. Barnes.
 John H. Staub.
 Richard L. Bohannan.
 John J. Ryle.
 John F. Harrison.
 Gilbert T. Smith.
 Thomas J. Biggs.
 Ralph W. Crane.
 W. T. Godfrey.
 Charles L. Dichter.
 Walter L. Scofield.
 Edward Williamson.
 Samuel M. Shirk.
 P. P. Van Vleet.
 Julius Nemoitin.
 Charles H. B. Meade.

J. Wait Avery.
 I. F. Carroll.
 Raymond R. Gandy.

Stratford:

W. B. Cogswell.
 G. F. Lewis.
 D. Howland.

Weston—LYONS PLAINS:

F. Gorham.

Westport:

F. Powers.
 F. D. Ruland.
 L. H. Wheeler.
 J. M. Nolan.

Total Number, 179.

WINDHAM COUNTY.

EDWARD F. PERRY, M.D., Putnam, *President*.

CLARENCE E. SIMONDS, M.D., Willimantic, *Vice President*.

W. P. STUART KEATING, M.D., Willimantic, *Secretary*.

Councilor—GEORGE M. BURROUGHS, M.D., Danielson.

Censors—OWEN O'NEIL, M.D., W. H. JUDSON, M.D.,

FRANCIS DOWNING, M.D.

Annual Meeting, Third Thursday in April.

Brooklyn—WAUREGAN:

A. H. Tanner.

Danielson:

RIENZI ROBINSON.

W. H. Judson.

James B. Shannon.

~~Walter~~ George M. Burroughs. ?

Joseph N. Perriault.

Killingly:

George Barnes.

EAST KILLINGLY:

George E. Hill.

Moosup:

Charles N. Allen.

W. W. Adams.

Francis Downing.

CENTRAL VILLAGE:

JAMES L. GARDNER.

Plainfield:

Arthur A. Chase.

Pomfret:

+ + S. B. OVERLOCK.

Putnam:

John B. Kent.
 F. A. Morrell.
 Omer LaRue.
 Warren W. Foster.
 Henry R. Lowe.
 Marguerite J. Bullard.
 Edward F. Perry.
 Joseph N. Landry.

Thompson:

Robert C. Paine.

Windham:

F. E. Guild.

Willimantic:

Frederick Rogers.
 T. R. Parker.
 R. C. White.
 Laura H. Hills.
 Joseph A. Girouard.
 Clarence E. Simonds.
~~Went~~ Owen O'Neil. ?
 Charles H. Girard.
 J. H. Egbert.
~~Went~~ Louis I. Mason. ?
 W. P. Stuart Keating.
 Frank A. Camalier.

Woodstock—EAST WOODSTOCK:

Charles C. Gildersleeve.
 Total Number, 37.

LITCHFIELD COUNTY.

RALPH S. GOODWIN, M.D., Thomaston, *President*.

FRANCIS S. SKIFF, M.D., Falls Village, *Vice President*.

ROBERT HAZEN, M.D., Thomaston, *Secretary*.

Councilor—ELIAS PRATT, M.D., Torrington.

Censors—IRVING L. HAMANT, M.D., DAVID D. REIDY, M.D.,
 WILLIAM J. HOGAN, M.D.

Annual Meeting, Second Thursday in April; Semi-Annual, Second
 Thursday in October.

Bethlehem:

Etta M. Hadley-Judd.

Canaan—FALLS VILLAGE:

Francis S. Skiff.
 Leonard J. Loewe.

Cornwall—WEST CORNWALL:

Joseph Robinson.

Goshen:

J. H. North.

Litchfield:

J. T. Sedgwick.
 John L. Buel.
 Charles N. Warner.
 Charles I. Page.
 Nelson L. Deming.
 Charles H. Turkington.
 R. A. Marcy.

New Hartford:

Josiah Swett.

New Milford:

George E. Staub.
George H. Wright.
B. E. Bostwick.

New Preston:

Howard G. Stevens.

Norfolk:

John C. Kendall.
I. L. Hamant.
Lucius D. Bulkley.
Frederick S. Dennis.
A. W. Pinney.

North Canaan—CANAAN :

John G. Adam.
Charles W. Camp.
FRANK H. LEE.
Henry S. Turrill.

Plymouth—TERRYVILLE :

W. W. Wellington.
A. V. Stoughton.

Roxbury:

Louis J. Pons.

LAKEVILLE :

William Bissell.
George H. Knight.
William B. Bissell.
Ernest R. Pike.

Sharon:

Clarence W. Bassett.
Jerome S. Chaffee.

Thomaston:

Robert Hazen.
Ralph S. Goodwin.
James J. Kane.

Torrington:

William L. Platt.
Elias Pratt.
Jerome S. Bissell.
James D. Hayes.
Abram J. Barker.
Charles H. Carlin.
Sanford H. Wadhams.
H. D. Moore.
William J. Hogan.
Timothy M. Ryan.
Harry B. Hanchett.
George Streit.
Daniel P. Platt.

Washington:

Frederic W. Wersebe.

Watertown:

Ernest K. Loveland.

Winchester—WINSTED :

Edward L. Pratt.
William S. Hulbert.
Salmon J. Howd.
~~Wm~~ David D. Reidy. ?
Ernest R. Kelsey.
Maurice J. Reidy.

WEST WINSTED :

William S. Richards.

Woodbury—HOTCHKISSVILLE :

William G. Reynolds.
William Witter.

Total Number, 62.

MIDDLESEX COUNTY.

FREDERICK B. BRADEEN, M.D., Essex, *President*.

WILLIAM E. FISHER, M.D., Middletown, *Vice President*.

ARTHUR B. COLEBURN, M.D., Middletown, *Secretary*.

Councilor—GEORGE N. LAWSON, M.D., Middle Haddam.

Censors—M. C. HAZEN, M.D., J. H. KINGMAN, M.D.,
J. E. LOVELAND, M.D.

Annual Meeting, Second Thursday in April; Semi-Annual, Second
Thursday in October.

Chatham—MIDDLE HADDAM:

George N. Lawson.

EAST HAMPTON:

Frederick T. Fitch.

Chester:

Fred S. Smith.

Clinton:

David A. Fox.

Cromwell:

FRANK K. HALLOCK.

Charles E. Bush.

Charles A. McKendree.

Durham:

Charles E. Zink.

East Haddam:

M. W. Plumstead.

Essex:

Frederick B. Bradeen.

Charles C. Davis.

Haddam:

Miner C. Hazen.

Felix P. Chillingworth.

Middletown:

William E. Fisher.

Charles E. Stanley.

Henry S. Noble.

John E. Bailey.

Arthur J. Campbell.

Arthur B. Coleburn.

J. Francis Calef.

John E. Loveland. ?

Kate C. Mead.

DANIEL A. NOLAN. *hmt*

John H. Mountain. ?

Charles B. Young.

Jessie W. Fisher.

James T. Mitchell. ?

James H. Kingman. ?

Thomas P. Walsh.

James Murphy.

James M. Keniston.

Louis R. Brown.

Henry G. Jarvis.

Hamilton Rinde.

Sidney A. Lord.

Old Saybrook:

Calista V. Luther.

Irwin Grannis.

Portland:

Cushman A. Sears.

Frank E. Potter.

Dennis L. Glynn.

Edward J. Lynch.

Charles B. Chedel.

Saybrook—DEEP RIVER:

Howard T. French.

Arthur M. Pratt.

Westbrook:

Emmett J. Lyman.

Total Number, 45.

TOLLAND COUNTY.

JOHN P. HANLEY, M.D., Stafford Springs, *President.*

WRIGHT B. BEAN, M.D., Rockville, *Vice President.*

ELI P. FLINT, M.D., Rockville, *Secretary and Treasurer.*

Councilor—THOMAS F. ROCKWELL, M.D., Rockville.

Censors—F. L. SMITH, M.D., F. W. WALSH, M.D.,
FREDERICK GILNACK, M.D.

Annual Meeting, Third Tuesday in April; Semi-Annual, Third
Tuesday in October.

Coventry:

Isaac P. Fiske.

SOUTH COVENTRY:

WILLIAM L. HIGGINS.

Ellington:

Edwin T. Davis. *and*

Rockville:

Frederick Gilnack.

Thomas F. Rockwell.

Eli P. Flint.

Thomas F. O'Loughlin.

Frederick W. Walsh.

Wright B. Bean.

F. M. DICKINSON.

Somers:

Alonzo L. Hurd.

Stafford—STAFFORD SPRINGS:

CYRUS B. NEWTON.

Frank L. Smith.

James Stretch.

John P. Hanley.

Hebron:

Cyrus H. Pendleton.

Mansfield—MANSFIELD DEPOT:

Frederick E. Johnson.

Donald L. Ross.

MANSFIELD CENTER:

William E. Cramm.

Tolland:

Willard N. Simmons.

Total Number, 20.

OFFICERS OF THE CONNECTICUT STATE MEDICAL
SOCIETY FROM ITS ORGANIZATION IN 1792
TO THE PRESENT TIME.*

PRESIDENTS.

1792	Leverett Hubbard.	1878	Charles M. Carleton.
1794	Eneas Munson.	1879	Alfred R. Goodrich.
1801	James Potter.	1880	Gideon L. Platt.
1803	Thomas Mosley.	1881	William Deming.
1804	Jeremiah West.	1882	William G. Brownson.
1807	John R. Watrous.	1883	Elisha B. Nye.
1812	Mason F. Cogswell.	1884	Benjamin N. Comings.
1822	Thomas Hubbard.	1885	Elijah C. Kinney.
1827	Eli Todd.	1886	Thomas H. Hills.
1829	John S. Peters.	1887	Francis Bacon.
1832	William Buel.	1888	George L. Porter.
1834	Thomas Miner.	1889	Orlando Brown.
1837	Silas Fuller.	1890	Melancthon Storrs.
1841	Elijah Middlebrook.	1891	Charles A. Lindsley.
1843	Luther Ticknor.	1892	Cyrus B. Newton.
1846	Archibald Welch.	1893	Francis D. Edgerton.
1849	George Sumner.	1894	Francis N. Braman.
1851	Rufus Blakeman.	1895	Seth Hill.
1853	Richard Warner.	1896	Rienzi Robinson.
1854	William H. Cogswell.	1897	Ralph S. Goodwin.
1856	Benjamin H. Catlin.	1898	Henry P. Stearns.
1858	Ashbel Woodward.	1899	Charles S. Rodman.
1861	Josiah G. Beckwith.	1900	Leonard B. Almy.
1863	Ebenezer K. Hunt.	1901	John H. Grannis.
1865	Nathan B. Ives.	1902	Gould A. Shelton.
1866	Isaac G. Porter.	1903	Samuel B. St. John.
1867	Charles Woodward.	1904	William H. Carmalt.
1868	Samuel B. Beresford.	1905	†Edward H. Welch.
1869	Henry Bronson.		Nathaniel E. Wordin.
1870	Charles F. Sumner.	1906	William L. Higgins.
1871	Gurdon W. Russell.	1907	Everett J. McKnight.
1872	Henry W. Buel.	1908	Seldom B. Overlock.
1873	Ira Hutchinson.	1909	Samuel D. Gilbert.
1874	Lowell Holbrook.	1910	Frank K. Hallock.
1875	Pliny A. Jewett.	1911	John G. Stanton.
1876	Ashbel W. Barrows.	1912	E. T. Bradstreet.
1877	Robert Hubbard.		

*Prepared for the Secretary by Dr. J. B. Lewis, Hartford.

†Resigned.

VICE PRESIDENTS.

1792	Eneas Munson.	1878	Alfred R. Goodrich.
1794	Elihu Tudor.	1879	Gideon L. Platt.
1796	James Potter.	1880	William Deming.
1801	Thomas Mosley.	1881	William G. Brownson.
1803	Jeremiah West.	1882	Elisha B. Nye.
1804	Jared Potter.	1883	Benjamin N. Comings.
1806	John R. Watrous.	1884	Elijah C. Kinney.
1807	Mason F. Cogswell.	1885	Samuel Hutchins.
1812	John Barker.	1886	Francis Bacon.
1813	Timothy Hall.	1887	George L. Porter.
1814	Thomas Hubbard.	1888	Orlando Brown.
1822	Eli Todd.	1889	Charles J. Fox.
1824	Eli Ives.	1890	Charles A. Lindsley.
1827	John S. Peters.	1891	Cyrus B. Newton.
1829	William Buel.	1892	Francis D. Edgerton.
1832	Thomas Miner.	1893	Francis N. Braman.
1834	Silas Fuller.	1894	Seth Hill.
1837	Elijah Middlebrook.	1895	Rienzi Robinson.
1841	Luther Ticknor.	1896	Ralph S. Goodwin.
1843	Archibald Welch.	1897	Henry P. Stearns.
1846	Dyer T. Brainard.	1898	Charles S. Rodman.
1847	George Sumner.	1899	Leonard B. Almy.
1849	Rufus Blakeman.	1900	John H. Grannis.
1851	Richard Warner.	1901	Gould A. Shelton.
1853	William H. Cogswell.	1902	Samuel B. St. John.
1854	Benjamin H. Catlin.	1903	William H. Carmalt.
1856	Ashbel Woodward.	1904	Edward H. Welch.
1858	Josiah G. Beckwith.	1905	{ Frederick A. Morrell.
1861	Ebenezer K. Hunt.		{ Eli P. Flint.
1863	Nathan B. Ives.	1906	{ Charles E. Brayton.
1865	Isaac G. Porter.		{ Franklin P. Clark.
1866	Charles Woodward.	1907	{ Miner C. Hazen.
1867	Samuel B. Beresford.		{ Irving L. Hamant.
1868	Henry Bronson.	1908	{ Samuel D. Gilbert.
1869	Charles F. Sumner.		{ Walter L. Barber.
1870	Gurdon W. Russell.	1909	{ Theodore R. Parker.
1871	Henry W. Buel.		{ William J. Tracey.
1872	Ira Hutchinson.	1910	{ Edmund P. Douglas.
1873	Lowell Holbrook.		{ Edward T. Bradstreet.
1874	Pliny A. Jewett.	1911	{ D. Chester Brown.
1875	Ashbel W. Barrows.		{ Ralph C. Paine.
1876	Robert Hubbard.	1912	{ Frederick Gilmack.
1877	Charles M. Carleton.		{ Alvin E. Barber.

SECRETARIES.

1792	Jared Potter.	1838	Archibald Welch.
1794	James Clark.	1843	Ralph Farnsworth.
1796	Daniel Sheldon.	1844	Worthington Hooker.
1798	Nathaniel Perry.	1846	Gurdon W. Russell.
1800	Samuel Woodward.	1849	Josiah G. Beckwith.
1801	William Shelton.	1858	Panet M. Hastings.
1805	John Barker.	1862	Leonard J. Sanford.
1810	Eli Ives.	1864	Moses C. White.
1813	Joseph Foot.	1876	Charles W. Chamberlain.
1817	Jonathan Knight.	1883	Samuel B. St. John.
1827	Samuel B. Woodward.	1889	Nathaniel E. Wordin.
1830	George Sumner.	1905	Walter R. Steiner.
1832	Charles Hooker.	1912	Wilder Tileston.

TREASURERS.

1792	John Osborn.	1829	Joseph Palmer.
1793	Jeremiah West.	1834	Elijah Middlebrook.
1794	John Osborn.	1837	Luther Tichnor.
1796	Mason F. Cogswell.	1841	Virgil Maro Dow.
1800	William B. Hall.	1851	George O. Sumner.
1808	Timothy Hall.	1863	James C. Jackson.
1813	Richard Ely.	1876	Francis D. Edgerton.
1816	Thomas Miner.	1883	Erastus P. Swasey.
1817	John S. Peters.	1889	William W. Knight.
1827	William Buel.	1905	Joseph H. Townsend.

ALPHABETICAL LIST

OF THE

MEMBERS OF THE CONNECTICUT STATE MEDICAL SOCIETY,

With Date and Place of Graduation, and Post-Office Address.

In preparing this list the Secretary has followed the list in the Proceedings of 1892, made with great care and labor by Dr. J. B. Lewis for the Centennial year. It may be relied upon as being correct.

Abrams, Alva Elnathan.....	Alhany, '81.....	Hartford.
Adam, John Geikie.....	Trinity, Tor., '00.....	North Canaan.
Adams, Frederick Joseph.....	Univ. N. Y., '95.....	Bridgeport.
Adams, Henry Eli.....	Yale, '02.....	Hartford.
Adams, William Waldo.....	Bellevue, '91.....	Moosup.
Agnew, Robert Robertson.....	Yale, '08.....	Jewett City.
Alcorn, Thomas Grant.....	P. & S., Boston, '97....	Thompsonville.
Alcott, Ralph Waldo Emerson.....	U. S. Med. Coll., '81..	West Hartford.
Alle, William Hanford.....	P. & S., N. Y., '99.....	Ridgefield.
Allen, Charles Noah.....	Univ. Vt., '81.....	Moosup.
Allen, Howard Oliver.....	Univ. N. Y., '79.....	Broad Brook.
Allen, Lauren Melville.....	P. & S., N. Y., '80....	South Norwalk.
Allen, Millard Fillmore.....	Med. Chi., Phila., '95....	New Haven.
Alling, Arthur Nathaniel, B.A., Yale, '86..	P. & S., N. Y., '91.....	New Haven.
Allyn, Gurdon Spicer.....	Univ. Pa., '03.....	New London.
Allyn, Louis Maxson.....	Univ. Pa., '93.....	Mystic.
Almy, Leonard Ballou, B.A., Yale, '73....	Bellevue, '76.....	Norwich.
Alton, Charles De Lancey.....	Bellevue, '75.....	Hartford.
Altshul, Henry.....	P. & S., N. Y., '87.....	Hartford.
Anderson, Arvid.....	Univ. Mich., '93.....	New Britain.
Anderson, Henry Gray.....	P. & S., N. Y., '89.....	Waterbury.
Arnold, Ernest Hermann.....	Yale, '94.....	New Haven.
Arnold, Harold Sears, B.A., Yale, '00....	Yale, '03.....	New Haven.
Atkinson, Edward.....	Univ. Vt., '93.....	Niantic.
Avery, John Waite.....	Univ. Vt., '97.....	Stamford.
Axtelle, John Franklin.....	L. I. Hosp. Coll., '71.....	Hartford.
Backus, Harold Simeon.....	L. I. Hosp. Coll., '03....	Broad Brook.
Bacon, Leonard Woolsey, Jr., B.A., Yale, '88..	Yale, '92.....	New Haven.
Bailey, George Cornelius.....	Univ. N. Y., '86.....	Hartford.
Bailey, John Elmore.....	P. & S., N. Y., '85.....	Middletown.
Bailey, Michael Angelo.....	P. & S., Balt., '93.....	Hartford.
Bangs, Dean Cleveland.....	Balt. Med. Coll., '02.....	Milford.
Banks, Charles Lincoln.....	P. & S., N. Y., '91.....	Bridgeport.
Barher, Alvin Elizur.....	Berkshire, '54.....	Bethel.

- Barber, Walter Lewis.....Bellevue, '73.....Waterbury.
 Barber, Walter Lewis, Jr., A.B., Yale, '03...N. Y. Univ. & Bellevue, '07, Waterbury.
 Barihault, Arthur Octave.....Vict. Med. Coll., '89.....New Haven.
 Barker, Abram James.....Bellevue, '97.....Torrington.
 Barnes, Frank Hazelhurst.....N. Y. Homeo. Med., '96....Stamford.
 Barnes, George.....Univ. N. Y., '04.....Killingly.
 Barnes, Wm. Samuel, Ph.B., Yale, '95....Yale, '97.....New Haven.
 Barnett, John Frederick.....Yale, '69.....West Haven.
 Barrett, William Joseph.....Md. Med., '04.....New Haven.
 Barrows, Benj. Safford, Ph.B., Yale, '83....Univ. N. Y., '87.....Hartford.
 Bartlett, Charles Joseph, B.A., Yale, '92;
 M.A., Yale, '94.....Yale, '95.....New Haven.
 Bartlett, William Bradford.....Harvard, '06.....Hartford.
 Bassett, Clarence Wheeler.....Univ. N. Y., '82.....Sharon.
 Beach, Charles Coffing, Ph.B., Yale, '77...P. & S., N. Y., '82.....Hartford.
 Beach, Charles Thomas.....Yale, '05.....Hartford.
 Beach, Edward Charles.....Yale, '88.....Milford.
 Bean, William Hill, Ph.B., Yale, '82....Yale, '03.....New Haven.
 Bean, Wright Butler.....P. & S., N. Y., '95.....Rockville.
 Beck, Frederick George.....Yale, '03.....New Haven.
 Bell, George Newton.....Yale, '92.....Hartford.
 Bellosa, Frederick.....Yale, '72.....New Haven.
 Benedict, Frank Allen.....P. & S., N. Y., '87.....Seymour.
 Benedict, John Mitchell.....Univ. N. Y., '82.....Waterbury.
 Bercinsky, David.....Yale, '02.....New Haven.
 Bergin, Thomas Joseph, B.A., Yale, '96...P. & S., N. Y., '99.....Cos Coh.
 Bergman, Alexander, B.S., Stockholm....City of N. Y., '95.....New Haven.
 Bernstein, Abraham.....Yale, '08.....Bridgeport.
 Bickford, Henry.....Penn. Eclectic Med., '68....Hartford.
 Biggs, Thomas Jacob.....Otis Med., '87.....Stamford.
 Bill, Philip Worcester, Ph.B., Yale, '97...P. & S., N. Y., '01.....Bridgeport.
 Bishop, Frederic Courtney, B.A., Yale, '92..Yale, '95.....New Haven.
 Bishop, Louis Bennett, B.A., Yale, '86....Yale, '88.....New Haven.
 Bissell, Jerome Samuel.....Yale, '94.....Torrington.
 Bissell, William, B.A., Yale, '53.....Yale, '56.....Lakeville.
 Bissell, William Bascom, A.B., Yale, '88...P. & S., N. Y., '92.....Lakeville.
 Black, John Eugene.....Yale, '08.....Shelton.
 Blackman, Chester Eugene.....L. I. Hosp. Coll., '97.....Bridgeport.
 Blais, Edward Holden.....P. & S., Balt., '06.....Hartford.
 Blake, Eugene Maurice.....Yale, '06.....New Haven.
 Blanchard, Irving DeLoss.....Yale, '97.....Hartford.
 Blank, Elmer Francis.....Starling, '97.....Bridgeport.
 Blodget, Henry, A.B., Yale, '75.....Bellevue, '81.....Bridgeport.
 Blumer, George.....Cooper Med. Coll., '90....New Haven.
 Boardman, Albertus Kellogg.....Univ. Penn., '99.....New Haven.
 Bodley, George Houghton.....Yale, '07.....New Britain.
 Bohannon, Charles Gordon.....Univ. N. Y., '78....South Norwalk.
 Bohannon, Richard Lee.....Univ. N. Y., '74.....Stamford.
 Borden, Charles Herbert.....P. & S., N. Y., '96.....Hartford.
 Bostwick, Benjamin Earle.....L. I. Hosp. Coll., '90....New Milford.
 Botsford, Charles Porter.....Yale, '94.....Hartford.
 Boucher, James Joseph.....P. & S., Balt., '04.....Hartford.
 Boucher, John Bernard.....P. & S., Balt., '94.....Hartford.
 Bowers, William Cutler.....P. & S., N. Y., '77.....Bridgeport.
 Boynton, Francis Nichols.....Univ. Mich., '03.....New Haven.

Brackett, Arthur Stone, B.A., Yale, '92....Jefferson, '95.....Bristol.
 Brackett, William Walker.....Jefferson, '96.....New Britain.
 Bradeen, Frederick Barton.....Univ. Pa., '99.....Essex.
 Bradley, Mark Spalding.....P. & S., N. Y., '92.....Hartford.
 Bradstreet, Edward Thomas, B.A., Yale, '74..P. & S., N. Y., '77.....Meriden.
 Brainard, Clifford Brewster, Ph.B., Yale, '94..Yale, '98.....Hartford.
 Brainard, Irving Edwin.....Yale, '02.....Wallingford.
 Braman, Francis Nelson.....Bellevue, '66.....New London.
 Brayton, Charles Erskine.....P. & S., N. Y., '73.....Stonington.
 Brennan, Patrick Joseph.....Yale, '07.....Waterbury.
 Brewer, Edward Pliny.....Dartmouth, '79.....Norwich.
 Bridge, John Law, B.S., Wesleyan, '88;

Ph.D., Clark, '94.....Harvard, '03.....Thompsonville.
 Bronson, William Thaddeus.....Univ. N. Y., '98.....Danbury.
 Brooks, Frank Terry, B.A., Yale, '90.....L. I. Hosp. Coll., '93.....Greenwich.
 Brooks, Myre Joel.....Yale, '67.....New Canaan.
 Brophy, Edward Joseph.....Yale, '04.....Norwich.
 Brown, Charles Henry.....Univ. N. Y., '93.....Waterbury.
 Brown, David Chester.....Yale, '84.....Danhury.
 Brown, Franklin George.....L. I. Hosp. Coll., '95....East Norwalk.
 Brown, Louis Raymond, A.B., Tufts.....Tufts, '07.....Middletown.
 Browne, William Tyler, Ph.B., Yale, '78...Harvard, '82.....Norwich.
 Brownlee, Harris Fenton.....P. & S., N. Y., '88.....Danhury.
 Bryon, Benn Adelmer.....Bellevue, '90.....Ridgefield.
 Buel, John Laidlaw.....P. & S., N. Y., '88.....Litchfield.
 Buffum, John Harold.....Univ. Vt., '98.....Wallingford.
 Bulkley, Lucius Duncan, A.B., Yale, '66;

M.A.,P. & S., N. Y., '69.....Norfolk.
 Bull, John Norris.....P. & S., N. Y., '78.....Plainville.
 Bull, Thomas Marcus.....P. & S., N. Y., '87.....Naugatuck.
 Bullard, Marguerite Jane, A.B., Cornell, '02..Cornell Univ., '04.....Putnam.
 Bunce, Philip Dibble, A.B., '88.....P. & S., N. Y., '91.....Hartford.
 Burke, William.....L. I. Hosp. Coll., '96.....Greenwich.
 Burnell, Francis Edwin.....L. I. Hosp. Coll., '94....South Norwalk.
 Burr, James Green.....Univ. Balt., '93.....Baltic.
 Burr, Noah Arthur.....Yale, '01.....South Manchester.
 Burroughs, George McClellan.....Balt. Med. Coll., '00.....Danielson.
 Bush, Charles Ellsworth.....Yale, '94.....Cromwell.
 Buttner, Jacques Louis.....Yale, '09.....New Haven.
 Butler, Joel Ives, Yale, '97.....Johns Hopkins, '01.....New Haven.
 Butler, William James.....L. I. Hosp. Coll., '95.....New Haven.

Caldwell, William Ely.....Balt. Med. Coll., '95....West Suffield.
 Calef, Jeremiah Francis, B.A., Wesleyan, '77..Yale, '80.....Middletown.
 Camalier, Frank A., A.B., Georgetown....Georgetown, '08.....Williamantic.
 Camp, Charles Welford.....Univ. N. Y., '74.....Canaan.
 Campbell, Arthur Joseph.....P. & S., Balt., '85.....Middletown.
 Campbell, Sheldon Samuel Stratton.....Univ. Vt., '02.....Collinsville.
 Carlin, Charles Henry.....Univ. Mich., '96.....Torrington.
 Carmalt, William Henry, M.A., Yale, '81..P. & S., N. Y., '61.....New Haven.
 Carroll, Isiah F.....Balt. Med., '06.....Stamford.
 Carroll, John James.....Dartmouth, '97.....Naugatuck.
 Carver, John Preston.....Albany, '96.....Simshury.
 Casey, William Bradford.....Univ. Md., '06.....Norwich.
 Cassidy, Louis Thomas, Georgetown, '04...Georgetown, '08.....Waterbury.

- Cassidy, Patrick.....Univ. Vt., '65.....Norwich.
 Cassidy, Patrick John, B.A., Yale, '94.....Johns Hopkins, '98.....Norwich.
 Castle, Frank Edwin.....Yale, '70.....Waterbury.
 Chaffee, Jerome Stuart, Ph.B., Yale, '94.....Univ. Pa., '97.....Sharon.
 Chapman, Albert Taylor.....P. & S., N. Y., '64.....Old Mystic.
 Chase, Arthur Alverdo.....Harvard, '01.....Plainfield.
 Chedel, Charles Brigham, A.B., Dartmouth,
 '03.....Dartmouth, '06.....Portland.
 Cheney, Benjamin Austin, B.A., Yale, '88..Yale, '90.....New Haven.
 Chester, Thomas Weston, B.A., Rutgers, '92;
 M.A., '95.....P. & S., N. Y., '95.....Hartford.
 Chillingworth, Felix Percy.....Yale, '07.....Haddam.
 Chipman, Edwin Clifford, A.B., Alfred Univ.,
 '87.....P. & S., N. Y., '91.....New London.
 Clark, Robert Moses.....Univ. Pa., '91.....New Britain.
 Clarke, John Alexander.....Bellevue, '97.....Greenwich.
 Clary, George, A.B., Dartmouth, '52.....Yale, '57.....New Britain.
 Clifton, Harry Colman.....Univ. Pa., '01.....Hartford.
 Cloonan, John Joseph.....P. & S., Balt., '97.....Stamford.
 Cobb, Albert Edward.....Yale, '98.....Hartford.
 Coburn, Jessie Milton.....Boston Univ., '74.....Norwalk.
 Cochran, Levi Bennett.....Univ. Pa., '93.....Hartford.
 Cogswell, William Badger.....Bellevue, '81.....Stratford.
 Cohane, Jeremiah Joseph.....Yale, '98.....New Haven.
 Cohane, Timothy Francis.....Yale, '97.....New Haven.
 Coholan, Michael James.....Univ. N. Y., '65.....New Britain.
 Coleburn, Arthur Burr.....P. & S., N. Y., '90.....Middletown.
 Conklin, James Henry.....Univ. Vt., '99.....Hartford.
 Converse, George Frederick.....Yale, '87.....New Haven.
 Coogan, Joseph Albert.....Bellevue, '76.....Windsor Locks.
 Cook, Ansel Granville.....P. & S., N. Y., '87.....Hartford.
 Cooke, Joseph Anthony.....Yale, '97.....Meriden.
 Cooley, Myron Lynus.....Buffalo Univ., '86.....Waterbury.
 Cooper, Louis Edward, Ph.B., '84.....Yale, '86.....Ansonia.
 Coops, Frank Harvey, B.A., Dalhousie, '88..P. & S., Balt., '96.....Bridgeport.
 Cowan, Isabel.....Wom. Med. Coll., N. Y., '92, Waterbury.
 Cowell, George B.....P. & S., N. Y., '88.....Bridgeport.
 Cox, Ralph Benjamin.....McGill, '02.....Collinsville.
 Coyle, William Joseph.....Buffalo Univ., '85.....Windsor Locks.
 Craig, Charles Franklin.....Yale, '94.....Danbury.
 Cramm, William Edward.....Univ. Vt., '95.....Mansfield Center.
 Crane, Augustus Averill, B.A., Yale, '85....Yale, '87.....Waterbury.
 Crane, Ralph William.....Yale, '05.....Stamford.
 Crary, David, Jr.....Yale, '69.....Hartford.
 Cronin, William Daniel.....P. & S., N. Y., '00.....New London.
 Crossfield, Frederick Solon.....Bellevue, '78.....Hartford.
 Crothers, Thomas Davison.....Albany, '65.....Hartford.
 Crowe, Willis Hanford.....P. & S., N. Y., '95.....New Haven.
 Curran, Philip John.....P. & S., N. Y., '01.....Bridgeport.
 Curtiss, William Martin Stanley.....Univ. Balt., '93.....Bristol.
 Dart, Frederick Howard.....P. & S., N. Y., '84.....Niantic.
 Davis, Charles Clarence.....Yale, '07.....Essex.
 Davis, Edwin Taylor.....Univ. Vt., '88.....Ellington.
 Davis, Elias Wyman, B.A., Yale, '80....Yale, '92.....Seymour.
 Davis, Gustav Pierpont, B.A., Yale, '66....P. & S., N. Y., '69.....Hartford.

- Day, Fessenden Lorenzo, B.A., Bates, '90..Bellevue, '93.....Bridgeport.
 Deane, Henry Augustus.....Dartmouth, '68.....South Windsor.
 DeBonis, Domenico.....Naples, '90.....Hartford.
 DeForest, Louis Shepard, B.A., Yale, '79;
 M.A., Yale, '91.....Univ. Jena, '85.....New Haven.
 Delaney, William Joseph.....McGill Univ., '87.....Naugatuck.
 Deming, Alletta Langdon Bedford, A.B.,
 CornellCornell, '05.....Waterbury.
 Deming, Dudley Brainard, Ph.B., Yale, '97..P. & S., N. Y., '01.....Waterbury.
 Deming, Nelson L., Ph.B., Yale, '90.....P. & S., N. Y., '93.....Litchfield.
 Denne, Thomas Harman.....Vermont, '05.....Bloomfield.
 Dennis, Frederick Shepard, B.A., Yale, '72;
 M.R.C.S.Bellevue, '74.....Norfolk.
 Devitt, Ellis King.....Univ. Med. Coll., '07.....Lyme.
 DeWolfe, Daniel Charles.....Univ. Vt., '86.....Bridgeport.
 Dichter, Charles Levi.....Md. Med. Coll., '05.....Stamford.
 Dickerman, Wilton Elias, B.A., Amherst, '90..Yale, '93.....Hartford.
 Dickinson, Francis McLean, Ph.B.,
 Yale, '00.....P. & S., N. Y., '05.....Rockville.
 Diefendorf, Allen Ross, B.A., Yale, '94....Yale, '96.....New Haven.
 Dillon, John Henry.....Yale, '04.....Waterbury.
 Dole, Mary Phylinda, B.S., Mt. Holyoke, '89..Wom. Med. Coll., '88....New Haven.
 Donahue, Bartbolomew Francis.....Yale, '03.....Forestville.
 Donahue, James Josepb.....P. & S., Balt., '96.....Norwich.
 Donaldson, William Henry.....Univ. N. Y., '81.....Fairfield.
 Donovan, Stephen.....P. & S., Balt., '02.....Derby.
 Douglass, Edmund Peaslce.....Univ. N. Y., '89.....Groton.
 Dowd, Michael Joseph.....Balt. Med. Coll., '01...Thompsonville.
 Dowling, John Francis.....L. I. Hosp. Coll., '90.....Hartford.
 Down, Edwin Augustus.....P. & S., N. Y., '87.....Hartford.
 Downing, Francis.....Balt. Med. Coll., '08.....Moosup.
 Downs, Frederick Bradley.....Univ. N. Y., '78.....Bridgeport.
 Dumortier, Jean.....Univ. Ghent, Belg., '89, South Norwalk.
 Dunham, Martin Van Buren.....Harvard, '67.....Greenfield Hill.
 Dunn, Frank Martin.....Balt. Med. Coll., '08....New London.
 Dwyer, Patrick James, A.B., Fordham, '94..Univ. N. Y., '97.....Waterbury.
 Dwyer, Richard Joseph.....Jeff., Pa., '08.....Hartford.
- Eddy, George William.....Vermont, '04.....Collinsville.
 Egbert, Jay Hobart, A.B., A.M., Univ.
 ChicagoP. & S., N. Y., '97.....Willimantic.
 Eggleston, Jeremiab Dewey.....P. & S., N. Y., '79.....Meriden.
 Eliot, Gustavus, B.A., Yale, '77; A.M.,
 Yale, '82.....P. & S., N. Y., '80.....New Haven.
 Ellis, Thomas Long, B.A., Yale, '94.....Yale, '96.....Bridgeport.
 Elmer, Edward Oliver.....P. & S., Balt., '94.....Hartford.
 Elmes, Frank Atwater.....Yale, '05.....Derby.
 Enders, Thomas Burnham, A.B., Yale, '88..P. & S., N. Y., '91.....Hartford.
 Engelke, Charles.....P. & S., N. Y., '02.....Waterbury.
 English, Richard Matthew.....Yale, '98.....Danbury.
- Felty, John Wellington, A.M., Emporia,
 Kan., '97.....Jefferson, '84.....Hartford.
 Fenn, Ava Hamlin.....P. & S., Balt., '86.....Meriden.

Ferrin, Carlisle Franklin, B.A., Univ.

Vt., '91.....P. & S., N. Y., '95.....New London.
 Ferris, Harry Burr, B.A., Yale, '87.....Yale, '90.....New Haven.
 Finch, George Terwilliger, B.A., Hobart, '75;

M.A., Hobart, '78.....Bellevue, '77.....Thompsonville.
 Finch, Sarah Elizabeth.....Cornell, '04.....Sound Beach.
 Fischer, Abraham.....N. Y. Univ. & Bell. Hosp., '09, Hartford.
 Fisher, Jessie Weston.....Wom. Med. Coll., Pa., '93, Middletown.
 Fisher, William Edwin.....Univ. Pa., '76.....Middletown.
 Fiske, Isaac Parsons.....Univ. N. Y., '75.....Coventry.
 Fitch, Frederick Tracy.....Yale, '04.....East Hampton.
 Fitzgerald, Charles.....Univ. Vt., '98.....New Haven.
 Fitzgerald, Edward.....P. & S., Balt., '84.....Bridgeport.
 Fitzgerald, William Henry.....Univ. Vt., '95.....Hartford.
 Fleck, Harry Willard.....Jefferson, '96.....Bridgeport.
 Fleischner, Henry.....Yale, '78.....New Haven.
 Flint, Eli Percival.....Yale, '79.....Rockville.
 Flint, Joseph Marshall, B.S., Univ. of

Chicago, '95; Princeton, '00;

Yale, '07.....Johns Hopkins, '00.....New Haven.
 Flynn, James Henry Joseph.....Yale, '95.....New Haven.
 Foote, Charles Jenkins, B.A., Yale, '83.....Harvard, '87.....New Haven.
 Ford, Alice Porter.....Wom. Med. Coll., Pa., '04, New Haven.
 Ford, George Skiff.....Bellevue, '93.....Bridgeport.
 Formichelli, Giovanni.....Univ. Italy, '98.....Bridgeport.
 Foster, Dean, M.A., Univ. Kan.....Yale, '99.....Stamford.
 Foster, Warren Woden.....Harvard, '82.....Putnam.
 Fox, Charles James.....Univ. N. Y., '76.....Hartford.
 Fox, David Austin.....Univ. & Belle., '02.....Clinton.
 Fox, Edward Gager.....Univ. N. Y., '83.....Wethersfield.
 Fox, Morton Earl.....L. I. Hosp. Coll., '03.....Uncasville.
 French, Howard Truman.....P. & S., N. Y., '91.....Deep River.
 Freney, John Daniel.....L. I. Hosp. Coll., '93.....Waterbury.
 Froelich, Charles Edward, B.A.,

Copenhagen, '64.....Copenhagen, '70.....Hartford.
 Fromen, Ernst Theodore.....Milwaukee Med. Coll., '97, New Britain.
 Frost, Charles Warren Selab.....P. & S., N. Y., '80.....Waterbury.

Gailey, John Joseph.....Bowdoin, '98.....Waterbury.
 Gancher, Jacob.....L. I. Coll. Hosp., '06.....Waterbury.
 Gandy, Raymond Reeves.....Univ. Pa., '99.....Stamford.
 Ganey, Joseph Matthew.....P. & S., N. Y., '04.....New London.
 Gardner, Charles Wesley.....Univ. Md., '01.....Bridgeport.
 Gardner, James Lester.....Univ. Vt., '81.....Central Village.
 Garlick, Samuel Middleton, B.A., Dart., '74.....Harvard, '77.....Bridgeport.
 Gaylord, Charles Woodward, B.A., Yale, '70.....Yale, '72.....Branford.
 Gerber, Jacob Wolf.....Univ. Md., '04.....Bridgeport.
 Gibbs, Joseph Addison.....P. & S., Chicago, '02.....Suffield.
 Gildersleeve, Charles Childs.....Yale, '96.....East Woodstock.
 Gill, Michael Henry.....Yale, '96.....Hartford.
 Gillam, William S.Univ. Pa., '88.....South Manchester.
 Gilnack, Frederick.....P. & S., N. Y., '67.....Rockville.
 Girard, Charles Hermenigilde.....Victoria, '96.....Willimantic.
 Girouard, Joseph Arthur.....Balt. Med. Coll., '99.....Willimantic.
 Gladwin, Ellen Hammond.....Wom. Med. Coll., N. Y., '72, Hartford.

- Glynn, Dennis Lawrence.....Balt. Med. Coll., '02.....Portland.
 Godfrey, Charles Cartlidge.....Dartmouth, '83.....Bridgeport.
 Godfrey, William Truitt.....Yale, '07.....Stamford.
 Gold, James Douglass, Ph.B., Yale, '88...P. & S., N. Y., '91.....Bridgeport.
 Goldberg, Samuel James.....Yale, '07.....New Haven.
 Gompertz, Louis Michael.....Yale, '96.....New Haven.
 Goodenough, Edward Winchester, B.A.,
 Yale, '87.....Yale, '93.....Waterbury.
 Goodrich, Charles Augustus, B.S.,
 Mass. Agr. Coll., '93.....P. & S., N. Y., '96.....Hartford.
 Goodrich, William Albert.....Med. Chi. Phila., '02.....Waterbury.
 Goodwin, Ralph Schuyler, Ph.B., Yale, '90..P. & S., N. Y., '93.....Thomaston.
 Goodyear, Robert Beardsley.....Yale, '68.....North Haven.
 Gordon, William Francis.....L. I. Hosp. Coll., '96.....Danbury.
 Gorham, Frank.....Yale, '76.....Lyons Plains.
 Grady, James Aloysius.....Georgetown, '03.....Waterbury.
 Grannis, Irwin.....Yale, '96.....Old Saybrook.
 Graves, Charles Burr, B.A., Yale, '82.....Harvard, '86.....New London.
 Graves, Frederick George.....Yale, '92.....Waterbury.
 Gray, William Henry.....P. & S., N. Y., '89.....Old Mystic.
 Gray, William Wetmore, B.S., Dickinson, '85..Bellevue, '90.....Bridgeport.
 Greenstein, Morris Jacob.....Univ. South, '06.....Bridgeport.
 Gregory, James Glynn, B.A., Yale, '65...P. & S., N. Y., '68.....Norwalk.
 Gregory, Ward Slosson, Ph.B., Yale, '99...P. & S., N. Y., '03.....Norwalk.
 Griggs, John Bagg.....Yale, '97.....Hartford.
 Griswold, Arthur Heywood, A.B.,
 Harvard, '02.....Johns Hopkins, '06.....Hartford.
 Griswold, Frederick Pratt.....P. & S., N. Y., '76.....Meriden.
 Griswold, Julius Egbert.....Univ. N. Y., '79.....Rocky Hill.
 Griswold, William Loomis, Ph.B., Yale, '81..P. & S., N. Y., '85.....Greenwich.
 Guild, Frank Eugene.....L. I. Hosp. Coll., '85.....Windham.
- Hadley-Judd, Etta May.....Wom. Med. Coll., Phila., '95, Bethlebeu.
 Hall, Edward Dornenio.....Harvard, '73.....Meriden.
 Hall, Joseph Barnard.....Yale, '92.....Hartford
 Hallock, Frank Kirkwood, A.B., Wesleyan,
 '82; A.M., '85.....P. & S., N. Y., '85.....Cromwell.
 Hamant, Irving Louis.....L. I. Hosp. Coll., '90.....Norfolk.
 Hamilton, Charles Allen.....Univ. Vt., '86.....Waterbury.
 Hammond, Samuel Mowbray.....Yale, '96.....New Haven.
 Hanchett, Harry Bigelow.....Jefferson, '05.....Torrington.
 Hanley, John Patrick.....Cornell, '06.....Stafford Springs.
 Harrington, James Leon.....Jefferson, '03.....New London.
 Harrison, John Francis.....Jefferson, '03.....Stamford
 Hart, Charles Remington.....P. & S., N. Y., '59.....Bethel.
 Hartshorn, Willis Ellis, Ph.B.,
 Colo. Coll., '95.....Univ. Minn., '98.....New Haven.
 Haskell, Charles Nahum.....Univ. Vt., '90.....Bridgeport.
 Hatheway, Clarence Morris.....Bellevue, '03.....Hartford.
 Hawkes, William Whitney, B.A., Yale, '79..Yale, '81.....New Haven.
 Hawley, George Walter.....Cornell, '99.....Bridgeport.
 Hayes, James Dermot, B.S., Manhattan
 Coll., N. Y.....Univ. N. Y., '94.....Torrington.
 Hayes, John Francis.....Univ. N. Y., '79.....Waterbury.

Haylett, Howard Bulkley.....Vermont, '07.....Hartford.
 Hazen, Miner Comstock.....Univ. Mich., '55.....Haddam.
 Hazen, Robert, A.B., Univ. Vt., '96.....Univ. Vt., '98.....Thomaston.
 Henkle, Emmanuel Alexander.....Cornell, '99.....New London.
 Henze, Carl William.....Yale, '00.....New Haven.
 Hepburn, Thomas Norval, A.B., Randolph

Macon Coll., Va., A.B., '00; A.M., '01.....Johns Hopkins, '05.....Hartford.
 Herbert, Archibald Cecil.....Univ. Va., '03.....New Haven.
 Herr, Edward A., Dartmouth, '05.....Vermont, '09.....Waterbury.
 Hersbman, Abram Aron.....Yale, '08.....New Haven.
 Hertzberg, George Robert.....Dartmouth, '99.....Stamford.
 Hessler, Herman Philip.....Yale, '03.....New Haven.
 Heublein, Arthur Carl.....P. & S., N. Y., '02.....Hartford.
 Hewes, Frank William.....Univ. Vt., '94.....Groton.
 Heyer, Harold Hankinson.....Univ. N. Y., '87.....New London.
 Higgins, Gould Shelton.....Yale, '01.....North Haven.
 Higgins, Harry Eugene.....Univ. N. Y., '96.....Norwich.
 Higgins, Royal Lacey.....Bellevue, '67.....Norwalk.
 Higgins, William Lincoln.....Univ. N. Y., '90.....South Coventry.
 Hill, Charles Edwin, B.A., Yale, '76.....Harvard, '79.....East Killingly.
 Hill, William Martin.....Univ. Va., '97.....Noank.
 Hills, Laura Heath.....Wom. Med. Coll., '96.....Willimantic.
 Hine, Henry Kingsley.....Md. Med. Coll., '08.....Waterbury.
 Hitchcock, Walter, Ph.B., Yale, '80.....P. & S., N. Y., '83.....Norwalk.
 Hodgson, Thomas Cady, M.B.,

Toronto, '94.....Trinity Medical Coll., '94, East Berlin.
 Hogan, William John.....Yale, '98.....Torrington.
 Holbrook, Charles Werden, M.A.,

Amherst, '93.....Yale, '96.....East Haven.
 Holroyd, Joseph Scripture.....P. & S., N. Y., '95.....Waterville.
 Horton, William Wickham.....Univ. N. Y., '79.....Bristol.
 Houghton, Simon Willard.....Bellevue, '79.....Hazardville.
 House, Albert Lewis.....Yale, '95.....Noroton.
 Howard, Arthur Wayland.....Univ. N. Y., '90.....Wethersfield.
 Howard, John.....Dartmouth, '81.....Hartford.
 Howd, Salmon Jennings.....Jefferson, '83.....Winsted.
 Howe, Harmon George.....Univ. Vt., '73, P. & S., N. Y., '75, Hartford.
 Howe, Herbert H.....Univ. Vt., '80.....Yantic.
 Howland, DeRuyter.....P. & S., N. Y., '06.....Stratford.
 Hoyt, Curtis Clark.....P. & S., N. Y., '87.....Bridgeport.
 Hoyt, Harold Eliphalet, A.B., Univ. Kansas, Albany, '94.....Waterbury.
 Hulbert, William Sharon.....Univ. N. Y., '80.....Winsted.
 Hungerford, Henry Edward.....Yale, '98.....Waterbury.
 Huntington, Samuel Henry.....Yale, '76.....Norwalk.
 Hurd, Alonzo L., B.S., Me., '82.....Univ. Vt., '91.....Somers.
 Hurlbut, Augustin Moen, B.A., Yale, '76..P. & S., N. Y., '79.....Stamford.
 Hyde, Fritz Carleton.....Univ. Mich., '60.....Greenwich.
 Hyde, Harriet Baker.....Univ. Mich., '00.....Greenwich.
 Hynes, Thomas Vincent.....Yale, '00.....New Haven.

Ingalls, Pbineas Henry, A.B., Bowdoin, '77;

A.M., '85.....P. & S., N. Y., '80.....Hartford.
 Irving, Samuel Wellington.....Yale, '91.....New Britain.
 Ives, Eli Butler.....Yale, '03.....Bridgeport.
 Ives, John Wagner.....Yale, '00.....Milford.

Jarvis, Henry Gildersleeve, A.B., Yale.... Johns Hopkins, '10..... Middletown.
 Jennings, George Herman..... L. I. Hosp. Coll., '75..... Jewett City.
 Johnson, Edwin Hines..... Univ. Vt., '88..... Naugatuck.
 Johnson, Frederick Eugene..... Univ. N. Y., '79..... Mansfield.
 Johnson, John Murray..... L. I. Hosp. Coll., '95..... Bridgeport.
 Johnson, Marcus Morton, Ph.B., Brown, '70.. Univ. N. Y., '77..... Hartford.
 Joslin, George Harvey..... Univ. Vt., '87..... Mt. Carmel.
 Judson, William Henry..... Jefferson, '78..... Danielson.

Kane, James Hugh..... Md. Med., Coll., '04..... Thomaston.
 Kane, Thomas Francis..... Bellevue, '87..... Hartford.
 Karrman, Edward William..... N. Y. Univ., '84..... Cheshire.
 Keane, Robert Barnabas..... Bellevue, '03..... Bridgeport.
 Keating, Hugh Francis..... Yale, '08..... New Haven.
 Keating, Wm. Patrick Stuart..... Jefferson, '99..... Willimantic.
 Keeler, Charles B..... Hahn, Chicago, '88..... New Canaan.
 Keith, Albert Russell, A.B., Colby, '97.... Harvard, '03..... Hartford.
 Kelsey, Ernest Russell..... Univ. Md., '01..... Winsted.
 Kellogg, Kenneth Evernghim..... P. & S., N. Y., '98..... New Britain.
 Kendall, John Calvin, B.A., Yale, '70..... P. & S., N. Y., '75..... Norfolk.
 Keniston, James Mortimer..... Harvard, '71..... Middletown.
 Kenna, William Matthew, Ph.B., Yale, '90.. Yale, '92..... New Haven.
 Kent, John Bryden..... Harvard, '60..... Putnam.
 Kiernan, Edward Charles..... Yale, '09..... New Haven.
 Kilbourn, Clarence Leishman..... Yale, '97..... New Haven.
 Kilbourn, Joseph Austin..... P. & S., Balt., '97..... Hartford.
 Kilmartin, Thomas J..... Univ. N. Y., '95..... Waterbury.
 Kimball, Rush Wilmot, A.B., Williams, '87.. L. I. Hosp. Coll., '90..... Norwich.
 King, Howard Frost Albany, '99..... Windsor.
 Kingman, James Henry, A.B., Yale, '82.... P. & S., N. Y., '85..... Middletown.
 Kingsbury, Isaac William, A.B.,

Harvard, '96..... P. & S., N. Y., '03..... Hartford.
 Kingsbury, William Sanford..... Yale, '96..... Glastonbury.
 Kirby, Frank Alonzo..... Columbian Univ., Wash., D. C., '95, New Haven.
 Klein, Alvin Walter..... Cin. Coll. Med. & Surg., '89, Greenwich.
 Kleiner, Israel..... Yale, '08..... New Haven.
 Knight, George Henry, A.M., Yale, '98.... P. & S., N. Y., '86..... Lakeville.
 Knight, William Ward..... Univ. N. Y., '76..... Hartford.
 Kowalewski, Victor Alexander, B.A.,
 Yale, '99..... Yale, '02..... West Haven.

La Field, Arthur Wm..... N. Y. Homeo., '05..... Bridgeport.
 Lally, Thomas John..... Albany, '99..... Waterbury.
 Lamb, Chauncey Stafford..... Buffalo Univ., '93..... New Haven.
 Lambert, Benjamin Lott..... Univ. N. Y., '83..... New Haven.
 Lampson, Edward Rutledge, A.B.,

Trinity, '91..... P. & S., N. Y., '96..... Hartford.
 Landry, Joseph Napoleon..... Laval, '01..... Putnam.
 Lane, Frederick Pollock..... Yale, '04..... New Haven.
 LaPierre, Leone Franklin..... Yale, '01..... Norwich.
 LaPointe, John William Henry..... Laval Univ., Montreal, '92.. Meriden.
 LaRue, Omer..... Vict., Montreal, '71..... Putnam.
 Lauder, Robert, M.A., Wesleyan, '89..... Yale, '71..... Bridgeport.
 Lawlor, Michael Joseph, Holy Cross, '02.... P. & S., N. Y., '06..... Waterbury.
 Lawson, George Newton, B.A., Yale, '90... Yale, '92..... Middle Haddam.

- Lawson, Stuart Johnston.....Univ. Md., '05.....New London.
 Lawton, Franklin Lyman, Ph.B., Yale, '90..Yale, '93.....Hartford.
 Lay, Walter Sidders.....Yale, '01.....Hamden.
 Lee, Frank Herbert.....Albany, '88.....Canaan.
 Lee, Harry Moore.....Columbia, '98.....New London.
 Lemmer, George Edward.....Bellevue, '85.....Danbury.
 Levery, Charles Joseph.....N. Y. Univ. & Belle., '01...Bridgeport.
 Lewis, Dwight Milton, B.A., Yale, '97....Johns Hopkins, '01.....New Haven.
 Lewis, George Francis, B.A., '64.....Yale, '65.....Collinsville.
 Lewis, George Frederick, B.A., Trinity, '77..Yale, '84.....Stratford.
 Lewis, John Benjamin.....Univ. N. Y., '53.....Hartford.
 Linde, Joseph Irving.....Yale, '08.....New Haven.
 Lindsley, Charles Purdy, Ph.B., Yale, '75...Yale, '78.....New Haven.
 Lockhart, Reuben Arthur.....Yale, '91.....Bridgeport.
 Lockwood, Howard DeForest.....Yale, '01.....Meriden.
 Loomis, Francis Newton, B.A., Yale, '81....Yale, '83.....Derby.
 Lord, Sidney Archer.....Harvard, '94.....Middletown.
 Loveland, Ernest Kilburn.....Yale, '97.....Watertown.
 Loveland, John Elijah, B.A., Wesleyan, '89..Harvard, '92.....Middletown.
 Loewe, Leonard J., M.D.V., Harvard, '98..Tufts, '01.....Falls Village.
 Lowe, Henry Russell.....Dartmouth, '82.....Putnam.
 Lowe, Russell Walter.....Univ. N. Y., '89.....Ridgefield.
 Luby, John Francis, Ph.B., Yale, '76.....P. & S., N. Y., '78.....New Haven.
 Ludington, Nelson Amos.....Yale, '01.....New Haven.
 Luther, Calista Vinton.....Wom. Med., Coll., Pa., '85, Old Saybrook.
 Lyman, David Russell.....Univ. Va., '99.....Wallingford.
 Lyman, Emmett Judson.....Yale, '07.....Westbrook.
 Lynch, Edward James.....Univ. Pa., '09.....Portland.
 Lynch, John Charles.....Univ. N. Y., '86.....Bridgeport.
 Lynch, Robert Joseph.....Bellevue, '97.....Bridgeport.
 Lyon, Edwin Bradbury.....Berkshire, '62.....Hartford.
 Lyon, Treby Williams.....Yale, '03.....New Haven.

 MacLean, Donald Robert.....Balt. Med. Coll., '01.....Stamford.
 Maguire, Edward O'Reilly.....P. & S., N. Y., '98.....Derby.
 Maher, James Stephen, Ph.B., Yale, '92....Yale, '96.....New Haven.
 Maher, Stephen John.....Yale, '87.....New Haven.
 Mailhouse, Max, Ph.B., Yale, '76.....Yale, '78.....New Haven.
 Maloney, Daniel Joseph.....Univ. N. Y., '96.....Waterbury.
 Maloney, Maurice Washington.....Jeff. Med. Coll., Phil., '97, New Britain.
 Mansfield, Howard Parker.....L. I. Hosp. Coll., '93.....Ridgefield.
 Marcy, Robert A.....N. Y. Univ. Med. Coll., '82, Litchfield.
 Mariani, Nicola.....Univ. Naples, '93.....New Haven.
 Marsh, Arthur Wasbburn.....Univ. Vt., '82.....New Haven.
 Martelle, Henry Augustus, A.B.,
 Bowdoin, '01.....Johns Hopkins, '05.....Hartford.
 Mason, Louis Irving.....P. & S., N. Y., '91.....Willimantic.
 May, George William.....Milwaukee Med. Coll., '95, So. Manchester.
 May, Jacob Rusb.....Chicago, '76.....Bridgeport.
 Mayberry, Franklin Hayden.....Univ. Vt., '85.....East Hartford.
 Mayer, Nathan.....Cincinnati, '57.....Hartford.
 McCabe, Edward Michael, B.A.,
 Manhattan, '83.....Yale, '87.....New Haven.
 McClellan, William Ernest.....Toronto, '04.....Hartford.
 McCook, John Butler.....P. & S., N. Y., '94.....Hartford.

- McDermott, Terrance Stephen.....Yale, '98.....New Haven.
 McDonald, Arthur Francis.....P. & S., N. Y., '05.....Waterbury.
 McDonnell, Ralph Augustine, B.A.,
 Yale, '90.....Yale, '92.....New Haven.
 McFarland, David Walter.....Univ. N. Y., '85.....Greens Farms.
 McGaughey, James David, Jr.....Jefferson, '10.....Wallingford.
 McIntosh, Edward Francis.....Yale, '97.....New Haven.
 McKee, Frederick Lyman.....P. & S., N. Y., '99.....Hartford.
 McKendree, Charles A., A.B.,
 Dartmouth, '07.....Dartmouth, '10.....Cromwell.
 McKnight, Everett James, B.A.,
 Yale, '76, M.A., '77.....P. & S., N. Y., '79.....Hartford.
 McLarney, Thomas Joseph.....P. & S., Balt., '97.....Waterbury.
 McLinden, James John.....Univ. Pa., '98.....Waterbury.
 McNeil, Rollin.....Yale, '62.....New Haven.
 McPartland, Patrick Farrell.....Balt. Med. Coll., '05.....Hartford.
 McSweeney, Jeremiah Everett.....Vermont, '91.....Hartford.
 Meade, Charles Havelock Beverly.....Univ. of Louisville, '02.....Stamford.
 Mead, Kate Campbell.....Wom. Med. Coll., Pa., '88, Middletown.
 Meeks, Harold Albert.....Bellevue, '90.....Meriden.
 Miles, Henry Shillingford, Ph.G., N. Y., '88..P. & S., N. Y., '91.....Bridgeport.
 Miller, George Root.....P. & S., Balt., '86.....Hartford.
 Miller, William Radley.....Albany, '98.....Southington.
 Minor, George Maynard.....L. I. Hosp. Coll., '85.....Waterford.
 Mitchell, James Thomas.....Univ. N. Y., '91.....Middletown.
 Molumphy, David James.....Jefferson, '06.....Hartford.
 Monagan, Charles Andrew, B.S.,
 Trinity, '93.....Univ. Pa., '98.....Waterbury.
 Moody, Mary Blair.....Buffalo, '76.....New Haven.
 Moore, Howard D.....Hahn, Phila., '93.....Danbury.
 Moore, Howard Doolittle.....Bellevue, '97.....Torrington.
 Morgan, William Dennison, A.B.,
 Trinity, '72.....P. & S., N. Y., '76.....Hartford.
 Moriarty, James Ligouri.....Harvard, '96.....Waterbury.
 Morrell, Frederick Augustus.....L. I. Hosp. Coll., '85.....Putnam.
 Morrissey, Michael James.....P. & S., Balt., Md., '97.....Unionville.
 Morrissey, William Thomas, B.A.,
 Holy Cross Coll.....Baltimore, '09.....Unionville.
 Morse, Vernon H. Chipman.....Harvard, '03.....Avon.
 Moser, Oran Alexander.....Yale, '02.....Rocky Hill.
 Moulton, Edward Seymour, B.A.,
 Oberlin, '91.....Yale, '94.....New Haven.
 Mountain, John Henry.....Jefferson, '96.....Middletown.
 Mullins, Samuel Frederick.....Bellevue, '06.....Danbury.
 Munger, Carl Eugene, Ph.B., Yale, '80....P. & S., N. Y., '83.....Waterbury.
 Murphy, James.....Univ. Pa., '95.....Middletown.
 Murphy, John Aloysius.....N. Y. Univ., '97.....New Haven.
 Murphy, Walter Graham.....Albany Med. Coll., '90.....Hartford.
- Nadler, Alfred Goldstein, B.A., Yale, '93....Yale, '96.....New Haven.
 Naylor, James Henry.....Univ. Vt., '95.....Hartford.
 Nelson, Abiel Ward.....Harvard, '61.....New London.
 Nemoitin, Julius.....P. & S., N. Y., '05.....Stamford.
 Nettleton, Francis Irving, Ph.B., Yale, '94..Yale, '97.....Shelton.
 Nettleton, Irving LaField.....L. I. Hosp. Coll., '98.....Bridgeport.

Newton, Cyrus Brownlee.....Yale, '56.....Stafford Springs.
 Nickerson, Nehemiah.....N. Y. Med. Coll., '57.....Meriden.
 Noble, Henry Smith, A.B., Tufts, '69;

LL.D., Tufts, '05.....P. & S., N. Y., '71.....Middletown.
 Nolan, Daniel Andrew, Ph.G., Phil., '93....Med. Chir., Phila., '95....Middletown.
 Nolan, Jacob Matthew.....P. & S., Balt., '94.....Westport.
 North, Joseph Howard.....L. I. Hosp. Coll., '73.....Goshen.
 Notkins, Louis Adolph.....Yale, '03.....New Haven.
 Noyes, Arthur Percy.....Univ. of Penn., '06.....Suffield.
 Noxon, George Henry.....Balt. Med. Coll., '93.....Darien.

Ober, George Eugene.....Univ. Vt., '90.....Bridgeport.
 O'Connell, Timothy Grattan.....Yale, '99.....Bristol.
 O'Connell, Thomas Smith.....P. & S., Balt., '92.....East Hartford.
 O'Connor, Matthew Charles, A.B., St.

Francis X., N. Y., '69.....P. & S., N. Y., '73.....New Haven.
 O'Connor, Patrick Thomas.....Bellevue, '92.....Waterbury.
 O'Donnell, Thomas James.....Syracuse, '08.....Greenwich.
 O'Flaherty, Ellen Pemhroke.....Cornell, '01.....Hartford.
 O'Hara, Bernard Augustine.....Bellevue, '82.....Waterbury.
 O'Hara, William James Aloysius.....P. & S., Balt., '93.....Bridgeport.
 O'Loughlin, Thomas Francis.....Univ. N. Y., '96.....Rockville.
 O'Neil, Owen.....Jefferson, '04.....Willimantic.
 Oshorn, George Wakeman, B.A., Yale, '84..P. & S., N. Y., '87.....Bridgeport.
 Osborne, Oliver Thomas.....Yale, '84.....New Haven.
 O'Shaughnessy, Edmund Joseph.....Bellevue, '99.....New Canaan.
 Otis, Samuel Dickinson.....Univ. N. Y., '77.....Meriden.
 Outerson, Andrew Mansergh.....Jefferson, '06.....Hartford.
 Outerson, Richard Amhrose.....Jefferson, '02.....Windsor Locks.
 Overlock, Seldom Burden, B.A., Colby, '86..Bellevue, '89.....Pomfret.
 Owens, William Thomas.....Univ. Vt., '99.....Hartford.

Page, Charles Ithamar.....P. & S., N. Y., '90.....Litchfield.
 Paine, Robert Child.....Dartmouth, '00.....Thompson.
 Park, Charles Edwin.....Yale, '81.....New Haven.
 Parker, Edward Oliver, A.B.,

Harvard, '91.....P. & S., N. Y., '96.....Greenwich.
 Parker, John Woodstock.....Yale, '06.....Bridgeport.
 Parker, Theodore Raymond.....Univ. N. Y., '80.....Willimantic.
 Parker, Thomas Edward.....Yale, '04.....Waterbury.
 Parlato, Michael Antonino.....Yale, '08.....Derby.
 Parmelee, Edward Kibbe.....L. I. Hosp. Coll., '89.....Ansonia.
 Patterson, David Cleveland.....P. & S., Balt., '06.....Bridgeport.
 Peck, Anthony, B.A., Hamilton, '72.....Univ. N. Y., '75.....Norwich.
 Peck, Robert Ellsworth, Ph.B., Yale, '90...Yale, '93.....New Haven.
 Peckham, Lucy Creemer.....Wom. Med. Coll., Pa., '85, New Haven.
 Pendleton, Cyrus Edmund.....Yale, '03.....New Haven.
 Pendleton, Cyrus Henry.....Western Reserve, '60.....Hebron.
 Perkins, Charles Harris.....P. & S., N. Y., '91.....Norwich.
 Perkins, William Sheldon Clark.....P. & S., N. Y., '60.....Norwich.
 Perriault, Joseph Napoleon.....Tufts, '07.....Danielson.
 Perry, Edward Franklin.....L. I. Hosp. Coll., '97.....Putnam.
 Phelps, Charles Dickinson, B.A.,

Amherst, '89; M.A., Amherst, '97.....P. & S., N. Y., '95.....West Haven.
 Philip, Rosavelle Gardner.....Wom. Med. Coll., N. Y. Inf., '75, Stamford.

- Phillips, Alfred Noroton.....P. & S., N. Y., '83.....Stamford.
 Phillips, Frank Lyman.....Yale, '06.....New Haven.
 Pierce, Elbridge Wortbington.....Univ. N. Y., '85.....Meriden.
 Pierson, John Corbin.....Tufts, '03.....Hartford.
 Pierson, Samuel.....P. & S., N. Y., '81.....Stamford.
 Pike, Ernest Reginald.....Univ. Mich., '98.....Lakeville.
 Pinney, Almon WilliamHahnemann Med. Coll., Phila., '00, Norfolk.
 Pinney, Royal Watson.....P. & S., N. Y., '88.....Derby.
 Pitman, Edwin Parker, B.A.,
 Dartmouth, '86.....Dartmouth, '91.....New Haven.
 Platt, Daniel Philips, N. Y. Univ.....Bellevue, '08.....Torrington.
 Platt, William Logan.....P. & S., N. Y., '81.....Torrington.
 Plummer, Paul.....Univ. Vt., '94.....Hartford.
 Plumstead, Matthew Woodbury.....Jefferson, '87.....East Haddam.
 Pomeroy, Nelson Asa.....P. & S., N. Y., '96.....Waterbury.
 Pons, Louis Jacques.....Univ. Vt., '85.....Roxbury.
 Porter, George Loring, B.A., Brown, '59....Jefferson, '62.....Bridgeport.
 Porter, Isaac Napoleon, B.A., Lincoln
 Univ., '90.....Yale, '93.....New Haven.
 Porter, William, Jr.....Chicago Med. Coll., '81.....Hartford.
 Potter, Frank Edward.....P. & S., N. Y., '89.....Portland.
 Potts, Joseph Henry.....Dartmouth, '05.....New Britain.
 Powers, Frederick.....P. & S., N. Y., '70.....Westport.
 Pratt, Arthur Milon.....Bellevue, '92.....Deep River.
 Pratt, Charles Reed.....Yale, '05.....Bridgeport.
 Pratt, Edward Loomis.....Univ. N. Y., '84.....Winsted.
 Pratt, Elias.....P. & S., N. Y., '87.....Torrington.
 Pratt, Nathan Tolles, A.B., Trinity, '94;
 M.A., '97.....Yale, '04.....Bridgeport.
 Purinton, Charles Oscar, Ph.B., Yale, '97..Yale, '00.....West Hartford.
 Purney, John.....Balt. Med. Coll., '06.....New Britain.
 Pyle, Francis Winthrop, A.B., Yale, '97....P. & S., N. Y., '02.....Bridgeport.

 Ramsay, Otto Gustaf, M.A., Yale, '01, Hon., Univ. Va., '90.....New Haven.
 Rand, Richard Foster, Ph.B., Yale, '95....Johns Hopkins, '00.....New Haven.
 Randall, William Sherman, Ph.B.,
 Yale, '83.....P. & S., N. Y., '86.....Shelton.
 Rankin, Charles Goodrich, A.B.,
 Williams, '84; A.M., '87.....Chicago Med. Coll., '86...Glastonbury.
 Reeks, Thomas Eben.....Univ. Md., '01.....New Britain.
 Reidy, David Dillon.....Med. Chi., Phila., '99.....Winsted.
 Reidy, Maurice J.P. & S., N. Y., '10.....Winsted.
 Reilly, Francis Henry.....Yale, '97.....New Haven.
 Reilly, James Michael.....Yale, '78.....New Haven.
 Reinert, Emil Gustav.....Balt. Med. Coll., '95.....Hartford.
 Reynolds, William George.....Yale, '97.....Hotchkissville.
 Rice, Watson Emmons.....Univ. Mich., '72.....Stamford.
 Richards, William Spencer.....Univ. N. Y., '89.....West Winsted.
 Rinde, Hamilton, N. Dakota, '02.....Johns Hopkins, '08.....Middletown.
 Rindge, Milo Pember.....P. & S., Cleveland, '05.....Madison.
 Ring, Henry Wilson, A.B., Bowdoin, '79;
 M.A., Bowdoin, '82.....Me. Med. Coll., '81.....New Haven.
 Rising, Harry Breed.....Yale, '95.....South Glastonbury.
 Rising, Henry Martin.....Yale, '68.....South Glastonbury.
 Robbins, Charles Henry.....Balt. Med. Coll., '95.....New Haven.

- Robbins, George Orrin.....Yale, '79.....Waterbury.
 Robbins, James Watson.....Bellevue, '80.....Naugatuck.
 Roberts, Albert Joseph.....Harvard, '02.....Bridgeport.
 Robinson, Joseph.....P. & S., N. Y., '98.....West Cornwalk.
 Robinson, Myron Potter.....Yale, '95.....Windsor Locks.
 Robinson, Myron Winslow.....Berkshire, '60.....Noroton.
 Robinson, Paul Skiff, Ph.B. Yale, '89.....Yale, '91.....New Haven.
 Robinson, Rienzi.....L. I. Hosp. Coll., '69.....Danielson.
 Rockwell, Thomas Francis.....Univ. N. Y., '81.....Rockville.
 Rodman, Charles Shepard.....P. & S., N. Y., '68.....Waterbury.
 Rogers, Frederick.....Univ. N. Y., '63.....Willimantic.
 Rogers, Henry Alexander.....Bellevue, '86.....New London.
 Rogers, James Frederick.....Yale, '05.....New Haven.
 Rogers, Thomas Weaver.....P. & S., N. Y., '90.....New London.
 Ronayne, Frank Joseph.....Yale, '04.....West Hartford.
 Rooney, James Francis.....Balt. Med. Coll., '03.....Hartford.
 Root, Edward King.....Univ. N. Y., '79.....Hartford.
 Root, Joseph Edward, B.S., Boston
 Univ., '76.....P. & S., N. Y., '83.....Hartford.
 Rose, John Henry.....Univ. N. Y., '92.....Hartford.
 Ross, Donald Laurence.....McGill, '87.....Mansfield Depot.
 Rowley, Alfred Merriman.....Univ. Vt., '97.....Hartford.
 Rowley, John Carter.....Harvard, '06.....Hartford.
 Rowley, Robert Lee.....Yale, '03.....Hartford.
 Ruickoldt, Frederick Arthur.....Jena, '65.....New Haven.
 Ruland, Frederick Davis.....P. & S., N. Y., '89.....Westport.
 Russ, Henry Camp, B.A., Yale, '02.....Johns Hopkins, '06.....Hartford.
 Russell, Edmund.....Univ. of Penn., '04.....Waterbury.
 Russell, George Washington.....Bellevue, '96.....Waterbury.
 Russell, Thomas Hubbard, Ph.B., Yale, '72.....Yale, '75.....New Haven.
 Russell, William Spencer.....Yale, '80.....Wallingford.
 Ryan, Joseph Patrick.....P. & S., N. Y., '03.....Hartford.
 Ryan, Patrick Joseph.....Niagara, '98.....Hartford.
 Ryan, Timothy Mayher, A.B., Loyola Coll. Balt. Med., '02.....Torrington.
 Ryder, Charles Ambler.....Yale, '98.....Brookfield Center.
 Ryle, John Joseph, A.B. and B.S.,
 Villanova, '94.....Univ. Buffalo, '97.....Stamford.
 Sanford, Charles Edwin.....Yale, '06.....New Haven.
 Sanford, Leonard Cutler, B.A., Yale, 90.....Yale, '93.....New Haven.
 Sanford, Ward Harding.....Balt. Med. Coll., '95.....New Haven.
 Sansone, Nicola Maria.....Denver Med. Coll., '02.....Bridgeport.
 Scarbrough, Marvin McRae, Univ. of
 Oregon, '02; Yale, '05.....Yale, '07.....New Haven.
 Schavoir, Frederick.....P. & S., Balt., '87.....Stamford.
 Schulz, Herman Samuel.....Hahemann, '01 (Phil.).....Bridgeport.
 Scofield, Everett J.....Univ. of N. C., '08.....Danbury.
 Scofield, Walter Lewis.....Univ. Vt., '07.....Stamford.
 Scoville, Clarence Henry.....Balt. Med. Coll., '92.....New Haven.
 Sears, Cushman Allen.....Univ. N. Y., '62.....Portland.
 Seaver, Jay Webber, B.A., Yale, '80;
 M.A., '93.....Yale, '85.....New Haven.
 Sedgwick, James Theodore.....Univ. N. Y., '85.....Litchfield.
 Segur, Gideon Cross.....P. & S., N. Y., '82.....Hartford.
 Shahan, Dennis Joseph.....Univ. Vt., '85.....Norwich.

- Shannon, James Bernard.....Victoria, '89.....Danielson.
 Sharpe, Elmer Thomas.....Univ. N. Y., '95.....Derby.
 Sharpe, Harry Rahe.....Univ. Vt., '00.....Manchester.
 Sheehan, William Joseph, B.S., Manhattan
 Coll., '92.....Yale, '95.....New Haven.
 Shelton, Gould Ahijah, M.A., Yale, '91.....Yale, '69.....Shelton.
 Sherer, Henry Clifford.....Univ. N. Y., '92.....South Norwalk.
 Sherman, Florence A.Wom. Med. Coll., '91.....Bridgeport.
 Sherrill, George.....P. & S., '91.....Stamford.
 Shirk, Samuel Martin.....Hahn., Phil., '97.....Stamford.
 Simmons, Willard Nelson.....Univ. Vt., '89.....Tolland.
 Simonds, Clarence Eugene.....Univ. N. Y., '97.....Willimantic.
 Simonson, Louis, Mass. Coll.....Tufts, '08.....Hartford.
 Simpson, Frederick Thomas, B.A., Yale, '79..Me. Med. Coll., '84.....Hartford.
 Skiff, Francis Sands.....Univ. N. Y., '88.....Falls Village.
 Skinner, Clarence Edward, LL.D.,
 Rutherford, N. C., '00.....Yale, '91.....New Haven.
 Slaterry, Morris Dove.....Yale, '93.....New Haven.
 Sloan, Thomas George.....P. & S., N. Y., '99..South Manchester.
 Smith, Andrew Jackson.....P. & S., N. Y., '63.....Bridgeport.
 Smith, Charles.....L. I. Hosp. Coll., '90.....Riverside.
 Smith, Dorland, A.B., Yale, '96.....Yale, '99.....Bridgeport.
 Smith, Earl Terry, M.A., Trinity,
 '03 Hon.....Yale, '97.....Hartford.
 Smith, Edwards Montrose.....P. & S., N. Y., '82.....Bridgeport.
 Smith, Edward Weir, A.B., Yale, '78.....McGill, Mont., '82.....Meriden.
 Smith, Eghert Livingston.....Yale, '96.....Waterbury.
 Smith, Ernest Herman, A.B. Amherst, '85..P. & S., N. Y., '89.....Redding.
 Smith, Frank Lewis.....Univ. N. Y., '75.....Stafford Springs.
 Smith, Frank Llewellyn.....Albany, '83.....Bridgeport.
 Smith, Frederick Sumner, B.A., Yale, '79..Yale, '82.....Chester.
 Smith, George Arthur, A.B., Yale, '03.....Johns Hopkins, '07.....Hartford.
 Smith, Gilbert Tyson.....Univ. of Med., '97.....Stamford.
 Smith, Henry Huhert.....Jefferson, '77.....New Haven.
 Smith, Herbert Eugene, Ph.B., Yale, '79..Univ. Pa., '82.....New Haven.
 Smith, Newton Phineas.....P. & S., N. Y., '82.....Norwich.
 Smith, Oliver Cotton.....L. I. Hosp. Coll., '83.....Hartford.
 Smyth, Herbert Edmund.....McGill Univ., '84.....Bridgeport.
 Sperry, Frederick Noyes.....Yale, '94.....New Haven.
 Spier, Seymour Leopold.....Yale, '04.....New Haven.
 Sprague, Charles Harry.....P. & S., N. Y., '04.....Bridgeport.
 Standish, Frank Billings.....Yale, '03.....New Haven.
 Standish, James Herbert.....Univ. N. Y., '95.....Hartford.
 Stanley, Charles Everett.....Univ. Pa., '76.....Middletown.
 Stanton, George Dallas.....Bellevue, '65.....Stonington.
 Stanton, John Gilman, B.A., Amherst, '70..Wurtzburg, '73.....New London.
 Starr, Rohert Sythoss, B.A., Trinity, '97;
 M.A., '00.....P. & S., N. Y., '01.....Hartford.
 Staub, George Edwards.....L. I. Hosp. Coll., '93.....New Milford.
 Staub, John Howard.....L. I. Hosp. Coll., '99.....Stamford.
 Steadman, Willard George.....Bellevue, '74.....Southington.
 Steele, Henry Merriman, Ph.B., Yale, '94..Johns Hopkins, '02.....New Haven.
 Steiner, Walter Ralph, A.B., Yale, '92;
 M.A., Yale, '95.....Johns Hopkins, '98.....Hartford.
 Stern, Charles Seymour, A.B., C. C. N. Y..Bellevue, '91.....Hartford.

- Stetson, James Ebenezer.....Yale, '81.....New Haven.
 Stevens, Caroline North.....Tufts, '98.....Wallingford.
 Stevens, Frank William.....Yale, '00.....Bridgeport.
 Stevens, Howard Granson.....Balt. Med. Coll., '04.....New Preston.
 Stockwell, William Myron.....Univ. Pa., '04.....Shelton.
 Stoll, Henry Farnum.....P. & S., N. Y., '02.....Hartford.
 Storrs, Eckley Raynor.....Jefferson, '90.....Hartford.
 Stoughton, Arthur Volney, B.A.,
 Pomona, Calif.....Univ. Ohio, '98.....Terryville.
 Stowe, William Harvey.....Yale, '88.....South Norwalk.
 Stratton, Edward Augustus.....Univ. N. Y., '83.....Danbury.
 Streit, George.....Yale, '01.....Torrington.
 Stretch, James.....Univ. Coll., Richmond, Va., '02, Stafford Springs.
 Strosser, Herman.....Univ. Berlin, '84.....New Britain.
 Sullivan, Daniel.....Univ. N. Y., '97.....New London.
 Sullivan, Daniel Francis, A.B., Niagara
 Univ., '89.....Niagara Univ., '91.....Hartford.
 Sullivan, James Laurence.....P. & S., Balt., '01.....Bridgeport.
 Sullivan, Jeremiah Barrett, Yale, '03.....Yale, '06.....New Haven.
 Sullivan, John Francis, B.A., Yale, '90.....P. & S., N. Y., '94.....New Haven.
 Sullivan, Michael Joseph.....Cornell, '00.....Meriden.
 Sunderland, Paul Ulysses.....N. Y. Hom. Med., '94.....Danbury.
 Swain, Henry Lawrence.....Yale, '84.....New Haven.
 Swan, Horace Cheney.....Tufts, '03.....Hartford.
 Swasey, Erastus Perry.....P. & S., N. Y., '69.....New Britain.
 Swenson, Andrew Clay.....Yale, '02.....Waterbury.
 Swett, Josiah.....Univ. Vt., '78.....New Hartford.
 Swett, Paul Plummer.....Univ. N. Y., '04.....Hartford.
- Taft, Charles Ezra.....Harvard, '86.....Hartford.
 Tanner, Alfred Herbert.....Bellevue, '74.....Brooklyn.
 Taylor, John Clifton.....Univ. Mich., '91.....New London.
 Taylor, Maude Winifred.....Tufts, '05.....Hartford.
 Teele, Julia Ernestine, A.B., Tabor, '85.....Wom. Med. Coll., Pa., '88, New Haven.
 Tenney, Arthur John, Ph.B., Yale, '77.....Yale, '83.....Branford.
 Thihault, Louis Joseph.....Yale, '00.....Waterbury.
 Thompson, Emma Jane.....Wom. Med. Coll., N. Y. Inf., '96, Hartford.
 Thompson, George.....Me. Med. Coll., '89.....Taftville.
 Thompson, Harriet Adaline.....Wom. Med. Coll., Pa., '93, Bridgeport.
 Thompson, Whitefield Nelson, A.B.,
 Bates, '88.....Jefferson, '89.....Hartford.
 Thoms, Herbert King.....Yale, '10.....New London.
 Tileston, Wilder, Harvard, '95.....Harvard, '99.....New Haven.
 Tingley, Witter Kinney.....Bellevue, '86.....Norwich.
 Tinker, William Richard.....Univ. N. Y., '80.....South Manchester.
 Tolles, Burton Isaac, A.B., Yale, '01.....Yale, '04.....Ansonia.
 Topping, Jacob Reed.....Univ. N. Y., '82.....Bridgeport.
 Townsend, Charles Rodman.....Alhany, '95.....Bridgeport.
 Townsend, Jos. Hendley, B.A., Yale, '85.....Yale, '87.....New Haven.
 Townshend, Raynham.....P. & S., N. Y., '05.....New Haven.
 Tracey, Dwight Wallace, Ph.B., Yale, '04.....Johns Hopkins, '08.....Hartford.
 Tracey, William Joseph.....Univ. N. Y., '89.....Norwalk.
 Tracy, Andrew William.....McGill, '73.....Meriden.
 Tracy, Robert Graham.....Yale, '00.....New Haven.
 Travis, Catherine Hutchison.....Johns Hopkins, '03.....New Britain.

- Treadway, William Buckingham.....Univ. Mich., '83.....Howard, R. I.
 Treat, William Howard.....Yale, '06.....Derby.
 Trecartin, David Munson.....Dartmouth, '94.....Bridgeport.
 Truex, Edward Hamilton.....Univ. Louisville, '08...East Hartford.
 Tuch, Morris.....Bellevue, '06.....Hartford.
 Tudor, Mary Starr.....Wom. Med. Coll., Pa., '93, South Windsor.
 Tukey, Frank Martin, B.A., Bowdoin, '91..Harvard, '94.....Bridgeport.
 Turhert, Edward Joseph.....Balt. Med. Coll., '04.....Hartford.
 Turkington, Charles Henry, Ph.B. Yale, '03..Johns Hopkins, '07.....Litchfield.
 Turner, Arthur Robert, A.B., Amherst, '84..Univ. Paris, '94.....Norwalk.
 Turrill, Henry Smith, Ph.B., Yale, '06....Yale, '10.....Canaan.
 Tuttle, Charles Alling, Ph.B., Yale, '88....Yale, '90.....New Haven.
 Tuttle, Frank James.....Univ. Vermont, '98.....Waterbury.
 Tyler, Heman Augustin, Jr.....Yale, '98.....Hartford.

 Vail, George Francis, B.S., Villanova, '98..Univ. Pa., '02.....Hartford.
 VanStrander, William Harold.....Univ. Vt., '00.....Hartford.
 Van Vleet, Peter P.....Bellevue, '69.....Stamford.
 Varno, Henry George.....P. & S., Balt., '82.....Thompsonville.
 Verdi, William Francis.....Yale, '94.....New Haven.

 Wadhams, Sanford Hosea.....Yale, '96.....Torrington.
 Waite, Frank Louis.....Bellevue, '88.....Hartford.
 Wales, Francis.....N. Y. Univ., '97.....Stepney Depot.
 Walsh, Frederick William.....P. & S., Balt., '85.....Rockville.
 Walsh, Joseph William.....P. & S., Balt., '07.....Danbury.
 Walsh, Thomas Patrick.....Univ. Vt., '02.....Middletown.
 Ward, James Ward.....P. & S., Balt., '95.....Hartford.
 Warner, Charles Norton.....Jefferson, '96.....Litchfield.
 Warner, George Howell.....Yale, '97.....Bridgeport.
 Wason, David Boughton.....P. & S., N. Y., '00.....Bridgeport.
 Waterhouse, Henry Edwin.....P. & S., N. Y., '02.....Bridgeport.
 Waterman, Paul.....Cornell, '02.....Hartford.
 Waters, John Bradford.....Univ. Vt., '90.....Hartford.
 Watson, William Clark.....L. I. Hosp. Coll., '97.....Bridgeport.
 Watson, William Seymour.....L. I. Hosp. Coll., '87.....Danbury.
 Weidner, Calvin.....Univ. Ind., '93.....Hartford.
 Weir, Janet Marshall.....Queen's Univ., Kingston, Ont., '91, Hartford.
 Welch, George Kellogg.....P. & S., N. Y., '78.....Hartford.
 Welch, Harry Little, A.B., Yale, '94....Yale, '97.....New Haven.
 Welch, Thomas Francis.....Georgetown, '04.....Hartford.
 Welch, William Collins.....Yale, '77.....New Haven.
 Weldon, Thomas Henry.....Univ. N. Y., '83...South Manchester.
 Wellington, William Winthrop.....Univ. Vt., '89.....Terryville.
 Wells, Ernest Alden, A.B., Yale, '97.....Johns Hopkins, '01.....Hartford.
 Wersebe, Frederick William.....Univ. N. Y., '98.....Washington.
 West, Redfield Benjamin.....Univ. N. Y., '79.....Guilford.
 Wbeatley, Louis Frederick.....Tufts, '03.....Meriden.
 Wheeler, Frank Henry, B.A., Yale, '80....Yale, '82.....New Haven.
 Wheeler, Lewis Hawley.....Yale, '97.....Westport.
 Wheelock, Albert Andrews.....Univ. Vt., '97.....New Canaan.
 Whipple, Benedict Nolasco.....Yale Med. Sch., '07.....Bristol.
 White, Benjamin Walker.....L. I. Hosp. Coll., '86.....Bridgeport.
 White, Robert Creighton.....Univ. Vt., '89.....Willimantic.
 Whittemore, Edward Reed, A.B., Yale, '98..P. & S., N. Y., '02.....New Haven.

- Whittemore, Frank Hamilton.....Bellevue, '74.....New Haven.
 Wiedman, Otto George.....Univ. Pa., '05.....Hartford.
 Wight, George DeWitt.....Bellevue, '87.....Bethel.
 Willard, Frederick Buell, A.B., Univ.
 Vt., '97.....Univ. Vt., '00.....Hartford.
 Williams, Charles Mallory.....P. & S., N. Y., '98.....Stonington.
 Williamson, Edward.....Bellevue, '86.....Stamford.
 Wilmot, Louis Howard.....Univ. N. Y., '91.....Ansonia.
 Wilson, Frederick Morse, A.B., Colby, '71..Harvard, '75.....Bridgeport.
 Wilson, James Cornelius.....Univ. Vt., '04.....Hartford.
 Wilson, William Patrick.....P. & S., Balt., '90.....Wallingford.
 Winne, William Nelson.....N. Y. Univ., '97.....New Haven.
 Winship, Ernest Oliver.....Univ. Vt., '00.....New London.
 Witter, Orin Russell.....P. & S., N. Y., '01.....Hartford.
 Wolff, Arthur Jacob.....Tex. Med. Coll., '76, Bellevue, '83, Hartford.
 Wooster, Charles Morris.....Univ. N. Y., '79.....Tariffville.
 Wordin, Nathaniel Eugene, B.A., Yale,
 '70; M.A., Yale, '72.....Jefferson, '73.....Bridgeport.
 Wright, Frank Walden.....Bellevue, '80.....New Haven.
 Wright, George Herman.....P. & S., N. Y., '94.....New Milford.
 Wright, John Winthrop, A.B., Amherst, '77..Univ. N. Y., '80.....Bridgeport.
 Wright, Theodore Goodelle.....Univ. N. Y., '67.....New Britain.
 Wurtenberg, William Charles, Ph.B.,
 Yale, '89.....Yale, '93.....New Haven.
 Young, Charles Bellamy.....P. & S., N. Y., '94.....Middletown.
 Zink, Charles Edwin, A.B., Balt. Univ.....Balt. Univ., '00.....Durham.

